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ABSTRACT

Papers from the National Association of State Scholarship and Grant Programs/National Council of Higher Education Loan Programs conference on student aid are presented. They include: (1) "Keynote: Meta-Analysis of the Effects of Student Aid on Access, Choice, and Persistence" (Larry Leslie and Paul Brinkman); (2) "College Choice Issues Defined from National Data Bases" (Thomas G. Mortenson); (3) "The Relationship of Financial Aid to Student Persistence in a Commuter Institution: A Test of a Causal Model" (Arlett E. Moline); (4) "A Program Evaluation of the New York State Tuition Assistance Program" (Arlene Olinsky); (5) "Student Loans and Student Choice: Evidence on Access, Persistence and Change of Major" (Edward P. St. John and Jay Noell); (6) "Manageability of Federal Student Loans: New Evidence and the Effects of Reauthorization" (W. Lee Hansen and Marilyn S. Rhodes); (7) "Undergraduate Students' Cost of Attendance: Program Estimates and Student Experience" (Craig V. Schoenecker and Gerald L. Setter); (8) "How Recipients Learn about Financial Aid" (Robert Lowinger); (9) "Longitudinal Tracking of Aid Recipients: Issues in Packaging and Retention" (Marilyn Sango-Jordan); (10) "Proprietary Schools: Issues in Access and Aid" (Richard W. Moore); (11) "Variation in Student Financial Aid among New England Private Colleges: A Conceptual and Empirical Analysis" (Donald L. Basch); and (12) "Financing College: Implications of Alternative Choices for Urban University Students" (Eleanor R. Hall). References are provided at the conclusion of individual papers. (KM)

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FOURTH ANNUAL
NASSGP/NCHELP RESEARCH CONFERENCE
ON
STUDENT FINANCIAL AID RESEARCH

THE PROCEEDINGS
VOLUME I

JUNE 3 –5, 1987
WASHINGTON UNIVERSITY
ST. LOUIS, MISSOURI

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FOURTH ANNUAL NASSGP/NCHELP RESEARCH NETWORK CONFERENCE

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Issues in Financial Aid Research: Student Persistence & Choice

Paul Brinkman National Center for Higher Education Management Systems
"Meta-Analysis of the Effects of Student Aid on Access, Choice, and Persistence"

This paper synthesizes the results of more than a hundred studies on the effects of need-based student aid on access, choice, and persistence in higher education. Aid in the form of grants is shown to have a positive impact on access and choice, and aid recipients are found to persist in college about as well as non-recipients. Quantitative estimates of various effects are provided.

Thomas G. Mortenson American College Testing Program
"College Choice Issues Defined from National Data Bases"

Between 1979 and 1983, the college entrance rate for white high school graduates increased, while the rate for blacks decreased. This study examines changes in the college enrollment motivation of white and black college freshmen during this period to identify reasons for the divergent college enrollment behavior. In contrast to white students, the study finds blacks enrolled in 1984 were less motivated to attend college for career and general educational reasons than they were in 1978. A review of income data on individuals with four or more years of college shows that for blacks the return on a college education decreased compared to whites during this period.

Arlett E. Moline University of Minnesota
"The Relationship of Financial Aid to Student Persistence In A Commuter Institution: A Test of a Causal Model"

This research used path analysis to examine the role of financial aid on student persistence. The subjects were 227 freshmen financial aid recipients in a commuter institution. The casual model, which emphasized academic types of variables, accounted for 35% of the variance in persistence as measured by credits completed over a two-year period. The financial aid variables in the model showed no significant effect on persistence or grade-point average.

Balance Between Grants & Loans

Arlene Olinsky
New York State Higher Education Services Corporation
"A Program Evaluation of the New York State Tuition Assistance Program"

This study focuses on the program goals of access to and choice in higher education, as measured by numbers and relative proportions of low-income students participating in the TAP program. Program data are examined in relation to statewide postsecondary enrollments and high school graduation rates. Changes in utilization among educational sectors and income groups are considered.

Edward P. St. John
Jay Noell
Pelavin Associates
U.S. Department of Education
"Student Loans and Student Choice: Evidence on Access, Persistence and Change of Major"

For the past decade or so, many in the higher education community have believed that loans are not effective in fostering opportunities in higher education. This paper uses the High School and Beyond Survey of the high school class of 1980 to analyze the effects of different types of aid packages on student decisions concerning enrollment, persistence and choice of major. The findings show that loans are an effective means for promoting student opportunities in higher education.

W. Lee Hansen
University of Wisconsin at Madison
"Manageability of Federal Student Loans: New Evidence and the Effects of Reauthorization"

This paper analyzes California student debt burdens between 1978 and 1985. We find that debt levels are not cost driven and that relatively few college full time seniors have debts that result in unmanageable repayment levels. Expansion of student debt since the late 1970s is largely the consequence of the 1978 Middle Income Student Assistance Act. The 1986 Reauthorization, while easing the repayment burden, will do relatively little to curb student borrowing.

Studying Financial Aid Recipients

Craig V. Schoenecker Minnesota Higher Education Coordinating Board
Gerald L. Setter "Undergraduate Students' Cost of
Attendance: Program Estimates and
Student Experience"

This paper describes the results of a Minnesota Higher Education Coordinating Board study of undergraduate students' cost of attendance. Differences in students' living expenses were statistically related to type of institution, residence type, household size, age, marital status and weekly take home pay. Eighty-four and seventy-six percent of the students surveyed reported living, book and supply expenses higher than the State Scholarship and Grant Program and median institutional allowances respectively. Seventy percent of comparable students reported living expenses above those necessary to maintain a lower standard of living as defined by the Bureau of Labor Statistics.

Robert J. Lowinger New York State Higher Education Services
Corporation
"How Recipients Learn about Financial
Aid"

Results of the Education Planning Survey (EPS) undertaken by the New York State Higher Education Services Corporation (NYSHESC) indicate guidance counselors, college financial aid officers and NYSHESC were generally well utilized and seen as useful sources of financial aid information by a majority of grant recipients, including minority group students. A factor analysis suggests that NYSHESC telephone services play a special role in reaching students not reached by other sources of financial aid information. The extent to which students find financial aid information provided by the guidance counselor to be useful strongly relates to their reported understanding of financial aid terms and conditions.

Marilyn Sango-Jordan New York State Higher Education Services
Corporation
"Longitudinal Tracking of Aid Recipients:
Issues in Packaging and Retention"

A 1985-86 sample of 1,178 first-time, full-time need-based grant recipients in New York State is being tracked through subsequent years' aid files. Rates of retention into the 1986-87 academic year were found to differ by income, sector/level of attendance, and ethnicity; however, this resulted partly from a tendency for lower-income and minority students to attend shorter-length programs.

Sectors of Interest

Richard W. Moore — Training Research Corporation
"Proprietary Schools: Issues in Access and Aid"

State student aid officials face a dilemma when they consider including proprietary schools in aid programs. Including proprietary schools means state aid will reach a large population of disadvantaged students. But, by including these schools state officials face potential risks, which are endemic to schools that serve large numbers of disadvantaged students, such as high default and dropout rates. This paper reviews current research on federal and state student aid in proprietary schools and argues that proprietary schools should be included in state aid programs. It suggests five principles that should guide state student aid policy in the proprietary sector.

Donald L. Basch — Simmons College
"Variations in Student Financial Aid Among New England Private Colleges: A Conceptual and Empirical Analysis"

Private, four-year New England undergraduate colleges vary substantially in their financial aid awards. Dividing the overall sample of institutions into two groups based on admissions selectivity, more selective colleges appear to be distinctly different from less selective colleges in the percentage of students judged needy, in average aid awards per student, and in average awards per needy student. Despite their higher comprehensive expense and their relatively well-publicized financial aid efforts, the data indicate that the more selective colleges have a substantially lower percentage of their students judged needy and offer only a moderately higher amount of average grant per student. Using simulation analysis, it appears that these results largely reflect the fact that while assessing a sharply higher comprehensive fee, more selective colleges also attract a group of students with a sharply higher distribution of expected family contribution.

Eleanor Hall — University of Wisconsin at Milwaukee
"Financing College: Implications of Alternative Choices for Urban University Students"

In a survey of urban university students, sex, parent education, race/ethnicity, hours worked, part- vs. full-time college attendance, use of financial aid services, and residence with parents were related to grades, to social integration, and to persistence five years later. Students living with their parents used financial aid much less. A path analysis showed that for men, residence with parents was associated with working longer hours; financial aid usage was positively related to persistence. For women, residence with parents was unrelated to hours and was positively related to persistence.

Alternatives in Higher Education Financing

John B. Lee — National Center for Postsecondary Governance and Finance
"The Equity of Higher Education Subsidies"

"The Equity of Higher Education Subsidies" is a preliminary investigation to determine what the total subsidy is for students attending colleges and universities. The amount of the subsidy is calculated for different classifications of students including income groups, racial and ethnic groups, ability groups, and by type of school attended. The results indicate that ability is the best predictor of subsidy with high ability students receiving the greatest subsidy and low ability students the least. Students attending private schools receive the largest subsidy with those in public four year schools a close second and community college students a distant third.

W. Lee Hansen — University of Wisconsin at Madison
Jacob O. Stampen
"The Growing Tension between Quality and Equity in Financing Higher Education"

This paper reviews the changes over the past 40 years in the social and economic environment affecting higher education finance, focusing particularly on the related emphasis given to quality and equity. Its empirical work compares changes in instructional-related costs, as a reflection of a concern about quality, with the net share of the these costs paid by students, (tuition and fees less total student aid), as a reflection of equity. The evidence indicates a pendulum-like movement with a sharp shift from equity to quality concerns in the 1980s.

Marilyn Sango-Jordan — New York State Higher Education Services Corporation
"An Inventory of Alternative Financing Methods for Higher Education"

This paper lists some of the options for higher education financing that have received attention of late as alternatives to "traditional" grant/loan packaging. Included are prepaid tuition plans, "targeted" grants such as those designed to recruit math and science teachers or to encourage minorities entering the health professions; cooperative education and college work-study programs; part-time study grants; and employer assistance. Ramifications of federal tax reform for various aspects of the financial aid process are mentioned.

Creative Financing of Higher Education

Lutz Berkner New Jersey Department of Higher Education
"Simulating the Costs and Risks of State-Sponsored Tuition Prepayment Plans"

The costs and risks of a tuition prepayment plan can be allocated among the individual participants, the colleges, and the state in many different ways. The effects of a New Jersey proposal (S-3377) are simulated with varying assumptions about average tuition increases, rates of return, withdrawal rates from the program, age distribution of participants, and size of annual payments. It is shown that the plan can reimburse colleges for 90% or more of actual tuition charged as long as the tuition increases average less than two percentage points above average investment earnings. Since 1967, the difference between ten-year average tuition increases and government bond yields has in fact always been below two percentage points.

Thomas Parker The Education Resources Institute
"The Prospect for Family Education Loans"

Increasing desirability and cost of higher education, combined with reduction in federal aid has forced parents and students to look elsewhere for education funding. This paper examines the responses of federal and state government, private lending institutions, and individual colleges to the need for new methods of education financing. This paper discusses one private, non-profit model, the Education Resources Institute (TERI), which holds that additional financing must be accompanied by increased information and counseling.

Bill Hall Applied Policy Research, Inc.
"An Innovative Approach to Public-Private Partnership"

On January 29, 1987, the Lilly Endowment announced a $50 million gift to the people of Indiana in commemoration of the Indianapolis-based charitable foundation's 50th anniversary. What started with the Lilly Endowment Board's decision to help Indiana students finance their education, and ended with the implementation of the new Lilly Endowment Educational Award (LEA) program, is an interesting case study of the role of research in decision-making. The Endowment Board had a clear vision of its goal and a firm idea of its bottom line. The models described in this report played a key role in helping the Board determine how it would pursue its goal within the established bottom-line limits.

Student Work

John Augenblick — Augenblick, Van de Water & Associates, Inc.
"A Study of Student Employment in Washington State"

This study examines the impact of working on the academic performance and persistence of a sample of full-time undergraduate students enrolled in Washington State's public and private colleges and universities. The fundamental conclusion is that work has no impact on the academic performance and very little impact on the academic progress of students in this sample. Neither the number of hours worked nor the rate of pay has a strong impact on students' grade point average, number of credit hours attempted, or the ratio of credits earned to credits attempted.

Gerald L. Setter — Minnesota Higher Education Coordinating Board
Craig V. Schoenecker
"Role of Student Employment Earnings in Financing the Cost of Attendance"

Based on a Minnesota Higher Education Coordinating Board study, 63 percent of the State Scholarship and Grant Program applicants had term-time jobs. One-fifth of the applicants contacted said that they would like to work but did not hold jobs when interviewed. The average applicant financed between 37 and 50 percent of his or her reported cost of attendance with current income, depending on type and location of institution attended. Unemployed applicants made greater use of loans and savings than applicants holding jobs during the spring term.

Microcomputer Workshop

David J. Carr — Virginia Council on Higher Education
"Telecommunications and Other Microcomputer Applications in Financial Aid Research: A Hands-On Demonstration"

This session consisted of a hands-on microcomputer demonstration. Freeware useful for financial aid research was explained and shared. Interested participants signed up for a bulletin board being developed for the Research Network.

National Data Bases

Samuel Peng — Center for Statistics, U.S. Department of Education
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Robert Fenske — Arizona State University
"The National Data Base for Postsecondary Student Financial Aid Studies (NPSAS)"

NPSAS, a triennial survey, will provide comprehensive student-based data for addressing issues in financing of postsecondary education. It will encompass all student aid programs, both Federal and non-Federal, all types of institutions, and aided and non-aided students. It will have data on the financial condition of a representative sample of GSL recipients, and the related capability for repayment of their loans. And, for the first time, definitive data on family contributions to financing postsecondary education will be available. The data base will be available for use in spring of 1988.

Debt Burden and the Default Problem

Art Hauptman — American Council on Education
"How Should We Measure Default Rates: How Can We Reduce Them?"

For a variety of reasons, the traditional method of measuring default rates in cumulative terms is an unsatisfactory way of tracking the changes in default activity over time. Better measures would be an annual default rate or a rate that measured the likelihood of default for a cohort of borrowers. With such improved measures, reinsurance and default reimbursement could be linked with default levels. It would also be possible with improved data collection to adjust default measure thresholds according to the likelihood of the borrower population to default.

Laurent Ross — American Council on Education
"Some Dimensions of the Increasing Student Loan Burden Problem Examined State by State"

Recent studies have documented increasing loan burdens for students in higher education. Declining amounts of federal grant aid relative to increases in college costs compound this problem. This paper utilizes the Fiscal Operations Report and Application to Participate (FISAP), the pilot study data from the National Postsecondary Student Aid Study (NPSAS), and the Department of Education's Pell Model to examine some of the dimensions of the increased need for student loans on a state by state basis. Need unmet by grants is studied on a per applicant basis for each state as well as for different types of institutions within states.

Jeff Webster — Texas Guaranteed Student Loan Corporation and The University of Texas at Austin

"Student Indebtedness in Texas: Study Results and Policy Implications"

This report (1) discusses trends in financial aid policy and the theory behind these policies, (2) empirically describes patterns of student borrowing in Texas, and (3) considers the implications of such levels of debt in light of demographic and structural changes in the economy. To facilitate an examination of student debt, a survey was conducted of two populations: (1) 1986 graduates from undergraduate programs at twelve four-year senior educational institutions in Texas, and (2) 1981 graduates from all degree programs at the University of Texas at Austin. The results from the study showed extensive indebtedness, significant considering the low tuition policy maintained by the state legislature at the state's public universities. While student borrowing has increased generally, minorities and low income students appear to have larger cumulative educational debt than do Anglos and students from other income groups, respectively.

META-ANALYSIS OF THE EFFECTS OF STUDENT FINANCIAL AID ON ACCESS, CHOICE, AND PERSISTENCE*

Determining the actual effects of student aid is a formidable task thanks to a variety of methodological problems. These problems range from mundane data issues to the subtleties of econometric modeling. Researchers have had difficulty in isolating the effects of student aid from a myriad of other influences. In all likelihood, the aid effects are relatively weak compared to factors known to be important, such as parents' education. It would be surprising, would it not, if nothing more than a reduction in the net price of attendance could overcome years of relative deprivation of many kinds experienced by typical low-income families.

Student aid itself is complicated. It can take the form of an outright grant, a job, a loan with varying degrees of interest subsidy, or, quite often, some combination thereof. Conceivably, the effectiveness of student aid could be related to its form as well as its amount.

The supply side of the equation is not without its problems too. Student aid researchers usually assume that the number of enrollment places expands indefinitely to meet any level of demand. Serious conceptual and statistical problems can be created if the assumption does not hold.

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* This paper summarizes a chapter in a book by Larry Leslie and Paul Brinkman on the economic value of higher education, to be published by ACE-MacMillan.

Despite the problems and complexities, considerable research has been done and much has been learned. In what follows I will discuss the various approaches that have been taken in analyzing the effects of student aid and then synthesize what has been learned about the effectiveness of student aid with respect to each of its three purposes: improving access, providing choice, and contributing to persistence.

Efforts have increased recently to find better ways than the conventional literature review to pull together and make sense of prior work in a given area. Terms such as research synthesis and meta-analysis describe some of these procedures. For this paper, the approach has been to proceed in a meta-analytic fashion by searching the literature comprehensively, standardizing the results of empirical studies where possible, and integrating the results mathematically where appropriate.

Analytical Approaches

Three distinct approaches have been used to measure the impact of student aid: econometric analyses of enrollment behavior, surveys of student opinions on the impact of student aid, and calculations of higher-education participation rates. Findings based on all of these approaches will be examined in this chapter. None of the three is without its weaknesses, but taken together they provide a reasonably sound basis for evaluating the effects of student aid.

In the econometric approach, researchers typically use multivariate statistical techniques to analyze actual student behavior. As is generally true for statistical modeling of complex phenomena, this approach is subject to various threats to the accuracy and reliability of the estimated effects. Nonetheless, all things considered, this is the preferred method for determining the effects of student aid because it affords the researcher the best opportunity to control systematically the influence of intervening variables, i.e., events or characteristics that mask the true relationship between student aid and enrollment.

A second approach to assessing the impact of student aid is to ask students how they perceive that impact on their own attendance decisions. Unfortunately, there is a good chance that these impressions of the effect of student aid will be biased upward. Students have an obvious interest in keeping their cost of attendance as low as possible and they are likely to be prone to exaggerating the effects of financial factors on their decision to enroll or remain in college.

The participation rate studies are similar to the econometric analyses in that they examine actual behavior, but they resemble the opinion surveys in the simplicity of their methodology. They address the following question: Do changes in higher-education participation rates for target populations move in the same direction as changes in the overall amount of student aid? Often this is the form of practical political test used to assess public policy initiatives. If participation rates and student aid amounts move in the same direction, then one has prima facie evidence that the student aid initiative is working, whereas a lack of such correlation may be viewed as a policy failure.

Although popular and seemingly straightforward, this approach is the most seriously flawed because, in effect, it fails to recognize the complexity of the phenomena being investigated. Although one can readily observe participation rates over time along with changes in the amount of student aid, one cannot readily ascertain the extent to which other socio-economic factors (including changes in the composition or type of aid) may have helped cause whatever rate behaviors are observed. Typically the studies include no formal control over the influence of these other factors, apart from an occasional adjustment of the income categories to reflect the movement of prices in the economy.

Integrative Review Results

In examining the effects of student aid, varying degrees of integration will be achievable. We are, after all, examining three issues--access, choice, and persistence--from the perspective of three methodological approaches. In some instances, the studies to be reviewed generate results which, when standardized, can be the basis for meaningful measures of central tendency such as mean or modal values. In other instances, the review will be able to go no further than assembling results in a manner such that patterns can be observed.

Access

For present purposes, the access question is formulated as follows: What proportion of students now attending college are doing so at least in part because of student aid? The review will be organized around the three methodologies described earlier.

Econometric Analyses. Nine econometric studies were found. Data from seven studies could be used for the integrative review. As expected, the effect on students from low-income families is by far the strongest. Without aid, mostly in the form of non-repayable grants, the enrollment of low-income students would be reduced by about 20 to 40 percent, depending on the estimate. The estimated effect on middle-income students is much smaller: the range across five studies is 7.4 to 19.5 percent. Other results of the econometric studies are that the magnitude of the impact of student aid varies by type of aid, sex, race, and level of academic achievement. The seven studies differ in important respects: the manner in which income categories are delineated, the type of aid whose effects are examined, and assumptions about the rules governing the awarding of aid (e.g., whether an award can be treated as a substitute for other aid). These differences limit the comparability of the results. Four of the seven studies are based on data from the National Longitudinal Study (NLS) of 1972.

The results of the econometric studies suggest that ethnic backgrounds and gender make a difference in the impact of student aid, but that more research needs to be done to sort out what is apparently a complex set of relationships and interactions among ethnicity, gender, and economic status.

Research findings are more congruent with respect to the differential impact of aid on students of differing academic abilities. With regard to aid, when deciding whether to attend college, low-income students of low ability are estimated to be from two to four times more responsive than low-income students of high ability.

The difference in the effect of grants versus loans has not been adequately researched. For low-income students loans appear to have less impact per dollar than grants do, but the few estimates of the difference vary widely. Loans appear to be more effective than grants for middle-income students, although this could be mostly a statistical artifact relating to the relative number of middle-income students using the two forms of aid.

Several studies presented usable data on the relative impact on enrollment of a decrease in tuition versus an increase of the same amount in grant aid. Theoretically, one would expect that tuition would have a somewhat greater impact than a comparable amount of grant aid, given that people generally are more knowledgeable regarding tuition. Nevertheless, the evidence in the econometric studies is inconclusive.

Surveys of Student Opinions. A second approach to assessing the impact of student aid on access is to ask students how they perceive that impact on their own attendance decisions. Typically about one-fourth to one-half of the aid recipients asked indicated that they would not attend either full-time or part-time without the aid. A total of 22 data points ranged from 22.5 percent to 67.1 percent, with a mean value of 42.6 percent. As expected, the reported effects are greater for students from low-income families: The mean values were 45.4 percent for the lowest income group, compared to 35.1 percent for the middle income group.

These studies reflect only the views of student aid recipients. Comparable results were obtained when students generally, usually high school seniors, were asked whether they could attend college without student aid. Across seven studies, typically about 45 percent of the needy students who were surveyed said they could not attend without aid.

Participation Rate Calculations. It is not possible to integrate the results of the participation rate studies in the manner accomplished in the two previous instances. Income categories, which are needed to isolate the target populations, vary widely among the studies. On some occasions the focus is on the very poor, while in other studies the focus is on families with less than the median income. The studies differ with respect to the age category for which participation rates are calculated, and they examine different intervals of time within a 22 year period (1961 to 1983). In addition, the sometimes substantial year-to-year variability in participation rates puts at risk any conclusions one might draw from the many studies that examine rates at isolated points in time.

Given the methodological variations, it is not surprising that the results are quite mixed. For example, there are data that show that participation rates for low-income students did not improve during the 1970s, a period when the amount of some forms of aid grew rapidly while the amount of other aid diminished. Hansen's (1983) study is perhaps the best known of those reaching this negative conclusion. Davis and Johns' (1982) study leads to the same conclusion for the 1970s, while showing very substantial gains comparing the late 1960s to the early 1970s. By contrast, the results of calculations by Tierney (1982), Francis (1982), and Clowes, Hinkle, and Smart (1986) indicate that low-income students made very substantial gains during the 1970s.

Regardless of how participation rates may have changed, the fact remains that low-income students still attend at considerably lower rates than do high-income students, despite the presence of great amounts of student aid. It is the interpretation of this fact that is problematic. In all likelihood, the relatively low participation rates for low-income students are not due solely to a money barrier, at least not the barrier that student aid is designed to overcome, i.e., the cost of attendance. Borus and Carpenter (1984), for example, found that when family background variables such as lower parental education were controlled (held constant), the percentages of poor youth going to college were not significantly different from those of more affluent youth. When those family characteristics were not controlled, when they were allowed to have their natural effect, youth from poorer families were less likely to attend college. This finding suggests that to further enhance the participation rate of low-income students might require an earlier intervention of some other kind than conventional forms of student aid.

Summary for Access. Overall, the results for access are as follows. All of the econometric analyses and student opinion surveys indicate that student aid, at least in the form of grants, does increase the enrollment of low-income individuals. The econometric studies suggest that nearly one-third of all low-income enrollment is due to student aid, primarily in the form of grants. The estimate based on the views of students receiving aid is a bit higher. The results of the participation rate studies do not lend themselves to unambiguous interpretation, especially with respect to the 1970s. Looking further back, to the 1960s, it is clear that a greater proportion of eligible low-income individuals are participating in higher education today than prior to the advent of the major federal student aid programs for the needy.

Choice

Student aid achieves its purpose with respect to choice to the extent that it reduces the number of occasions when income dictates where a student enrolls. The issue is sometimes framed as though it were a matter of ensuring that students can attend their first-choice institution. This is a less satisfactory way of defining the objective. It is highly probable that student and family income play an important role in shaping the initial selection of institutions considered to be viable options. If disproportionately large numbers of low-income students have low-cost and less prestigious institutions as their first choices, and there is some evidence for this (Munday, 1976), then realizing those choices would not achieve the goal of equal opportunity.

With few exceptions the research studies reviewed in this section focus on the enrollment distribution of students from different income levels. The distributions considered important are those between high-cost and low-cost institutions, public and private institutions, and institutions that differ by status: two-year, four-year, and university. Since control and status typically are correlated with price, most studies are in effect examining enrollment choices in relation to the price of attendance.

For expository purposes the studies reviewed are again organized by their general investigatory approach: econometric analyses, student opinion surveys, and compilations of participation rates (in the form of enrollment shares by type of institution). As was true for access, the number of studies concerning the effects of student aid on student choice is modest given the complexity of the issue. Nonetheless, the studies are sufficient to show beyond any reasonable doubt that student aid does help ensure choice. They also provide some idea of the magnitude of that effect.

Econometric Analyses. A total of 23 econometric analyses were found that analyze how student financial aid impacts on student choice. No one analytic approach is used in all of them; instead, three distinct approaches predominate. In the first set of studies, the focus is on effects as viewed from an institutional perspective. In the second set, the research centers on the effects of federal and state student aid programs. In the third set, student choice patterns are examined without reference to specific institutions or aid programs. Only the first of the three approaches led to results that could be synthesized quantitatively.

The largest group of studies, ten in all, examined the effects of student aid from the perspective of institutions in direct competition for students. In situations in which students clearly are choosing between two or more institutions, student aid that reduces the net price difference by $100 (in 1982 dollars) will have a positive enrollment effect on the higher cost institution of about 1.8 percent (with respect to the contested students). This estimate is based on eleven data points from four of the ten studies. It is both the mean and the median for the results distribution, but the range of that distribution is fairly large by comparison (.8 percent to 3.6 percent).

One of the issues addressed in a second set of choice studies is whether BEOG/Pell Grants, which were designed primarily as a means of ensuring access, have a demonstrable effect on the overall distribution of students by institutional type. The evidence is conflicting. For example, Carroll, Mori, Relles, and Weinschrott (1977) found that BEOGs typically enhance enrollments at higher cost as opposed to lower cost institutions. In a model developed by Manski and Wise (1983), however, almost all of the enrollment increases attributable to BEOGs occurred at two-year colleges or vocational-technical schools. By contrast, state student aid programs, which typically are designed to foster choice, have been shown to be effective in accomplishing that goal (for example, see Kehoe 1981).

Surveys of Student Opinions. Student opinion studies regarding student aid and choice differ in a number of ways that limit their comparability. Most critical in this regard are differences by level of student income, by type of student aid, and by type of institution. Deriving a measure of central tendency would not be appropriate. Nonetheless, the studies indicate clearly that student aid is enhancing choice in the opinion of a substantial portion of the students surveyed.

In some instances as many as 40 to 50 percent of the students queried felt that financial aid was an important factor in their choice of institution. The perceived effects of particular state student aid programs are almost always somewhat smaller than the effects of all aid combined. This is to be expected on the assumption that the impact of aid is directly related to the amount of aid.

The annual fall Cooperative Institutional Research Program (CIRP) surveys show increases since the mid 1970s in the percentage of freshmen students who indicate that the offer of financial assistance was a "very important reason" for attending their present college. The same surveys show that more women than men consider aid to be important in choosing their present college and that, in 1985, fully one-third of students at private four-year colleges considered aid to be important in their choice of institution, an impressive figure, it would seem, given that students at all income levels are represented in the response rates. The percentages are generally higher for students at predominantly black institutions than for students at all institutions.

Enrollment Share Calculations. The few enrollment share studies that focus on choice provide interesting results, although, as is often true for this type of study, the results are difficult to interpret. Some of the enrollment share percentages are strongly negative from the perspective of the choice goal. According to the Leslie (1977) and Astin (1985) compilations, the tendency of low-income students to be disproportionately enrolled in two-year colleges has not lessened during the student aid era. Indeed, the data indicate that the disproportion has increased. Another negative, underscored by Astin, is that the number of low-income students at the most selective public universities would have to more than double for low-income students to achieve proportionate enrollment levels at those institutions.

The compilation developed by Davis and Johns (1982) is generally more positive. It documents the enrollment behavior of students from families with incomes below the median. These students increased their representation in universities from 1966 to 1980. Nonetheless, it is only in two-year colleges that these students meet or exceed a 50 percent enrollment share. The evidence is fairly positive from the standpoint of enrollment of low-income students in private, relatively high-cost institutions. Using CIRP data, Leslie (1977) shows that students from low-income families substantially increased their enrollment share at private institutions during the period from 1968 to 1975. The Davis and Johns data indicate that four-year private institutions in particular were enrolling a much higher percentage of below median-income students in 1980, 37.1 percent, than in 1966, 26.6 percent. Private two-year colleges and private universities also show gains over that period, but the latter show a sharp decline, 30.3 percent to 25.7 percent, from 1976 to 1980, to a point where below median-income students are enrolling at about half the rate one might expect if family income were not a factor.

Perhaps the most discouraging finding to come out of the enrollment share studies is the continuing failure of minority students to achieve proportionate representation among the various types of institutions. By the early 1980s, according to Astin (1985), blacks, Hispanics, and American Indians were still overrepresented in public two-year colleges and underrepresented in public and private universities.

Summary for Choice. The evidence assembled in this section, at least with respect to the econometric and student opinion results, provides confirmation of what one would expect theoretically. Student aid is an effective way of changing net price differentials among competing institutions. An institution can increase its enrollment share by increasing the amount of aid it offers, other things staying the same. The perceived impact of aid on student's ability to chose among institutions appears to be increasing over time.

Persistence[1]

Relevant studies of persistence are numerous, and they typically compare, in quasi-experimental fashion, the behavior of individuals in a treatment group to the behavior of individuals in a control group. As a consequence, in dealing with the these studies one can proceed more in the manner of a conventional meta-analysis. First, the results of the studies are standardized in the form of abstract effect sizes. Then the effect sizes are averaged and the averages tested for statistical significance. Various subsets of studies are examined in similar fashion.

Whenever possible, the effect size for a sample was calculated as the sum of the treatment group mean minus the control group mean, divided by the control group standard deviation (Glass, 1976). When means or standard deviations were not provided, various algorithms were used to convert other types of statistical results, such as t-scores or chi-squares, to comparable effect sizes. In most studies the treatment group consists of aid recipients and the control group consists of aid non-recipients. In some situations, for example, in comparing the behavior of males and females, all individuals in the analysis are aid recipients.

The initial literature search uncovered 62 persistence studies. A number of them were eliminated from further consideration, including those that dealt with student perceptions rather than actual persistence measures, or with graduate, foreign, or athletic scholarship students, or that had ambiguous measures of persistence or financial aid, or that failed to provide adequate descriptive or inferential statistics to permit the calculation of an effect size. In the end, 49 studies containing 85 data points were used for the meta-analysis. In terms of the methodological framework I have been using for review purposes, all of these studies are of the econometric variety.

Findings. The baseline analysis examined 46 samples in which the persistence of aid recipients was compared to that of non-recipients. These samples differ in several ways including measures of persistence and types of institutions, students, financial aid, and research methods. Ignoring these differences for the moment, the overall impact of aid on persistence, as measured by the mean effect size for all 46 samples, is a statistically significant +.132, which means that, on average, a person receiving financial aid has a persistence likelihood greater than 55 percent of the non-recipient group.

There is considerable dispersion of effect sizes around the overall mean. Thirteen of the studies show negative results: aid recipients persisting less well than non-recipients. By contrast, six studies found positive effect sizes ranging from .44 to .52. An effect size of .5 would mean that the average aid recipient would have a persistence likelihood greater than 69 percent of the non-recipient group.

A second analysis included only those studies that control for academic ability. Aid recipients did not persist quite as well as non-recipients when the treatment and the control groups were matched on academic ability, but the difference was not statistically significant. The matched samples strongly suggest that aid leads to parity but not superiority in retention. The best supported overall conclusion, then, is that aid works as intended--it equalizes opportunity--but does no more than that.

Further analysis suggests that aid is more likely to have a positive influence on persistence if to persist means to remain enrolled through graduation rather than simply to reappear as a second-term or second-year student or at some other period of time prior to graduation, although this effect is not large and it does not appear at two-year colleges.

On average, aid has a greater effect on persistence among students at two-year colleges. The fact that two-year college students tend to be older than students in four-year colleges could be a factor.

Another variable related to time, the year(s) when the data were gathered, does have a statistically significant relationship with effect size. In a secondary statistical analysis in which effect size was regressed on various study characteristics, each year added .01 to the effect size; in other words, a study using 1980 data would be expected to have an effect size .15 larger than a study using 1965 data, other things being equal. Presumably, the data-year variable is a proxy for changes in student aid, student characteristics and mores, study methods, and whatever else might be evolving over time and affecting persistence behavior or its assessment.

A disturbing finding is that non-white aid recipients have a lower persistence rate than do white recipients. The average effect size is statistically significant, and the individual effect sizes for non-whites are negative in all six studies that examined this issue. The average non-white recipient has a persistence rate greater than only 41 percent of white recipients. Since academic ability was not controlled in these studies, interpreting this finding is not straightforward.

The amount of financial aid appears to have a positive impact on persistence; individuals receiving more aid tend to persist longer. It was not possible to interpret the effect size in terms of dollar amounts.

Several studies examined the relative effects of the form in which student aid is received. One would expect grants and scholarships to have a relatively large impact on persistence in that they are the most obvious form of subsidy. It does appear to turn out that way, although the differences in effect sizes are quite modest and generally not statistically significant. Loans may be slightly less effective in contributing to persistence, but the data are not conclusive. Loan-grant combinations, which occur with great frequency, do not appear to be less effective in promoting persistence than other forms of aid.

Summary for Persistence. The effect of student aid on persistence in college can be summarized as follows. One, the overall effect is to permit aid recipients to persist about as well as non-recipients. Two, the effect differs along several dimensions: the measure of persistence, the year of the study, the type of institution, ethnic origins of the aid recipients, the amount of aid, and the form of aid.

Conclusion

The evidence assembled and presented here shows that student aid does work on behalf of the social goal of equal opportunity. Because of aid, more low-income individuals have been able to study at the college level, attend relatively costly and prestigious institutions, and stay in school as long as more affluent students. Having said that, it must also be said that aid clearly is not all powerful. It has not removed all of the effects that are associated with variations in income and other aspects of a person's upbringing and overall environment. Still, at the margin, student aid is helping a very considerable number of students.

It will have been obvious from what I have said that much more is known about the effect of student aid in the form of grants than in the form of loans. Yet loans have become an increasingly important part of the overall aid picture. More must be learned soon about their effect on access, choice, and persistence. The same can be said for learning more about the relative cost effectiveness of different forms of aid.

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[1] The section on persistence is primarily a summary of a dissertation by Tullisse Murdock (1986).

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CHANGES IN COLLEGE ENROLLMENT MOTIVATION FOR WHITE AND BLACK COLLEGE FRESHMEN
1978-1984

By Thomas G. Mortenson
The American College Testing Program
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ABSTRACT

Between 1979 and 1983, the college entrance rate for white high school graduates increased, while the rate for blacks decreased. This study examines changes in the college enrollment motivation of white and black college freshmen during this period to identify reasons for the divergent college enrollment behavior. In contrast to white students, the study finds blacks enrolled in 1984 were less motivated to attend college for career and general educational reasons than they were in 1978. A review of income data on individuals with four or more years of college shows that for blacks the return on a college education decreased compared to whites during this period. Both whites and blacks expressed greater concern about financing college costs, but whites also said they were less likely to work to pay college expenses, and blacks were more likely to have to work. Further analysis of the Pell Grant Program shows that the purchasing power of Pell Grants for low income families declined during the period of divergent college entrance rates.

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CHANGES IN COLLEGE ENROLLMENT MOTIVATION FOR WHITE AND BLACK COLLEGE FRESHMEN
1978-1984

By Thomas G. Mortenson
The American College Testing Program

A current public policy issue in higher education is the growing disparity between the rates at which white and black high school graduates continue their educations by entering college. Since the mid-1970s, the proportion of recent white high school graduates going on to college has increased while the proportion of blacks continuing their educations has decreased.

This issue is an economic problem insofar as it represents a loss of valuable human capital required for economic vitality in an increasingly competitive world economy. This issue is a social problem insofar as education affects income, and the growing income gap between affluent and poor in the United States sows the seeds of social unrest. The issue is a political problem insofar as citizens are sufficiently concerned about these consequences that they expect their elected representatives to redress them. This paper, then, explores the enrollment motivation factors reported by American college freshmen and attempts to gain insight into the widening disparity in college entrance rates.

Data used in the analysis are taken from three sources. The first source is the annual Bureau of Labor Statistics (BLS) survey of recent high school graduates, conducted since 1959. The second and main source is the annual survey of American college freshmen conducted each fall since 1966 by the Cooperative Institutional Research Program (CIRP) at the University of California at Los Angeles. The third source is Census Bureau Current Population Survey data on income by educational attainment. These data are reported in the Appendix.

This analysis first examines college participation rates by gender and race in light of the equity objectives of federal student financial aid. The paper then proceeds to the analysis of responses to four questions asked in the annual CIRP survey of American college freshmen. The questions deal with: 1) life goals and values, 2) reasons for attending college, 3) reasons for choosing a particular college and 4) academic expectations. Trends in survey respondents' answers are examined for whites and blacks, particularly during the period between 1978 and 1984 when the disparity in college entrance increased sharply. Additional analysis of economic return on college investment for whites and blacks is presented in the conclusions and discussion section of the paper.

Equity of Access to Higher Education

During the last three decades, two major groups within the American population have sought equity positions in higher education: women and minorities. During the 1960s, women were only about three-quarters as likely to go on to college after high school graduation as were men. Similarly, non-white high school graduates were only three-quarters as likely to enroll in college as were whites.

In an attempt to broaden higher educational opportunity as a part of President Johnson's War on Poverty, the federal government adopted the Higher Education Act of 1965. This Act has been repeatedly amended, most notably with the 1972 Amendments that created Pell Grants, and in 1978 when the Middle Income Student Assistance Act was added. The focus of this legislation has been to broaden higher educational opportunity through financial aid, civil rights, information, and related activities.

Gender equity: According to the Bureau of Labor Statistics, the proportion of women high school graduates continuing their educations immediately after high school has increased almost steadily and very substantially between 1960 and 1985, from 38% to 57%. During that same period of time, the college going rate for males fluctuated from a low of 47% to a high of 63%. But overall, it increased little during this 25 year period, starting out at 54% and ending at 59% by 1985.

During the 1960s females continued their educations in college following high school at rates that averaged about 14% below the rates for males. By the mid-1970s, this access gap had disappeared. From 1976 through 1985, the female college going rate averaged .1% above the rate for males; there was no practical difference in the rates at which male and female high school graduates continued their educations after high school. These data are shown in Table A-1 in the Appendix to this paper, and Figures 1 and 2 on the following pages.

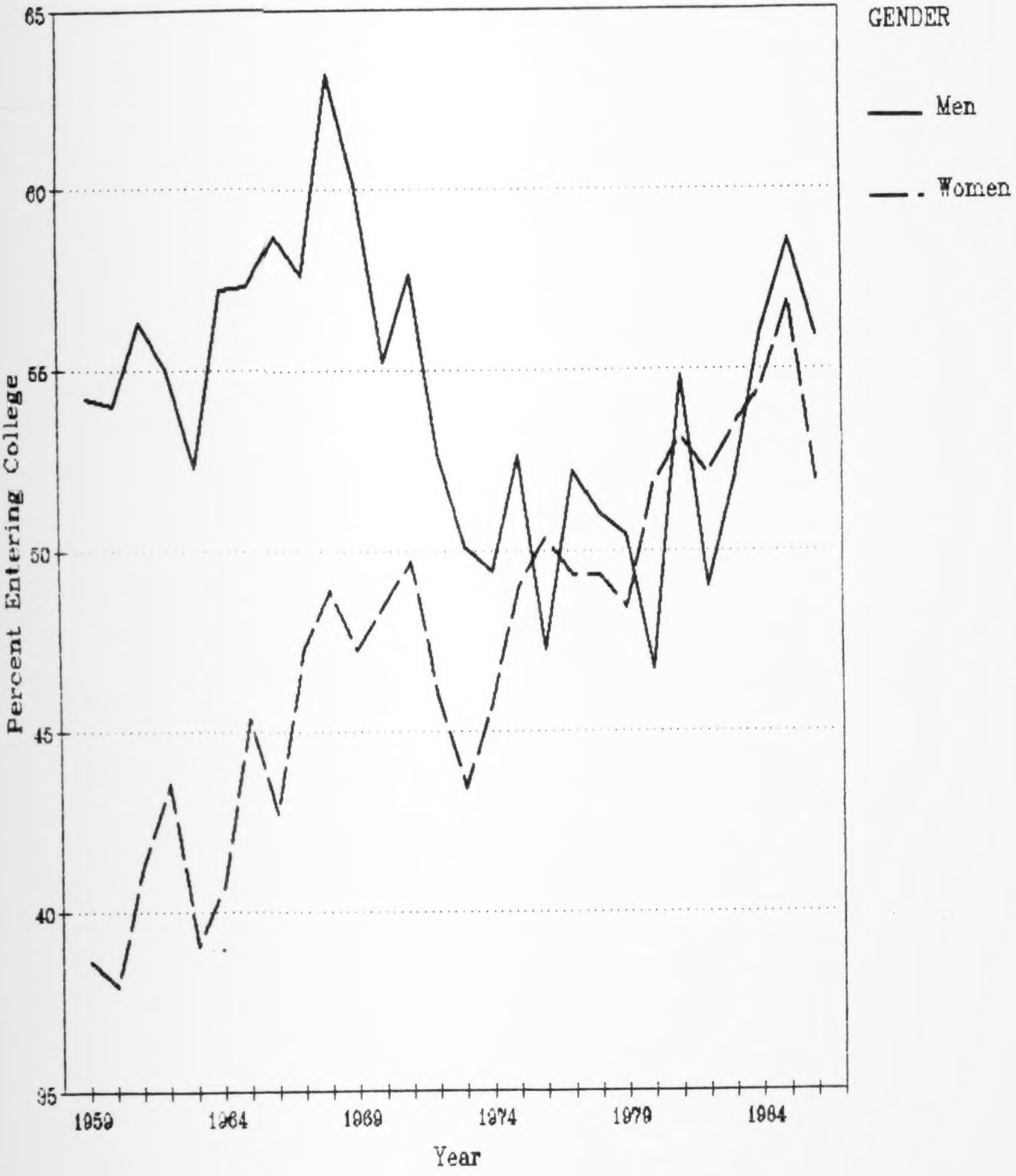
However, the equity position of women compared to men may now be deteriorating from the level of the previous decade. The 1986 data reflect the fourth consecutive year during which the college going rate for women has deteriorated compared to that for men, and the access gap was the largest it had been since 1973. This issue can be monitored further with additional observations in the annual BLS survey and other data.

Race equity: Additional data from the Bureau of Labor Statistics provide information on the rates at which white and non-white high school graduates have enrolled in college following high school graduation since 1960. These data are shown in Table A-2 in the Appendix.

The data for whites show substantial fluctuations in rates between 1960 and 1986 but an overall upward trend from about 46% in 1960 to about 56% by 1986. For non-whites, the pattern is different. Although small samples produce wide year-to-year fluctuations, the general trend evident in the data is one of increasing college going rates from 1960 to the mid-1970s, from about 36% to nearly 50%. Between the late 1970s and the mid-1980s, this rate has declined to about 43% by 1986.

Figure 1

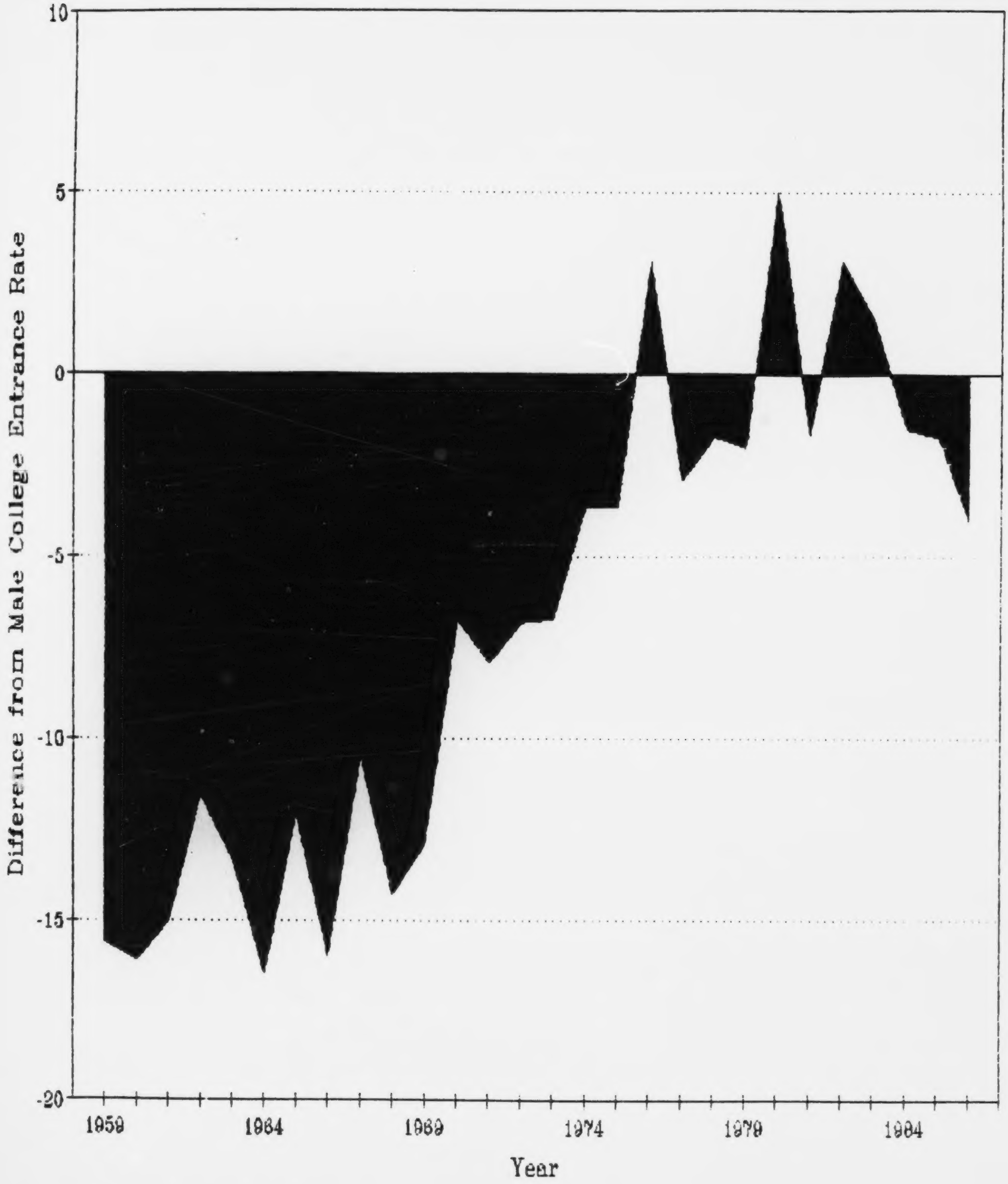
COLLEGE ENTRANCE RATES BY GENDER
1959-1986



Source: U.S. Dept. of Labor (Sharon Cohany)

Figure 2

COLLEGE ACCESS GAP FOR WOMEN
1959-1986



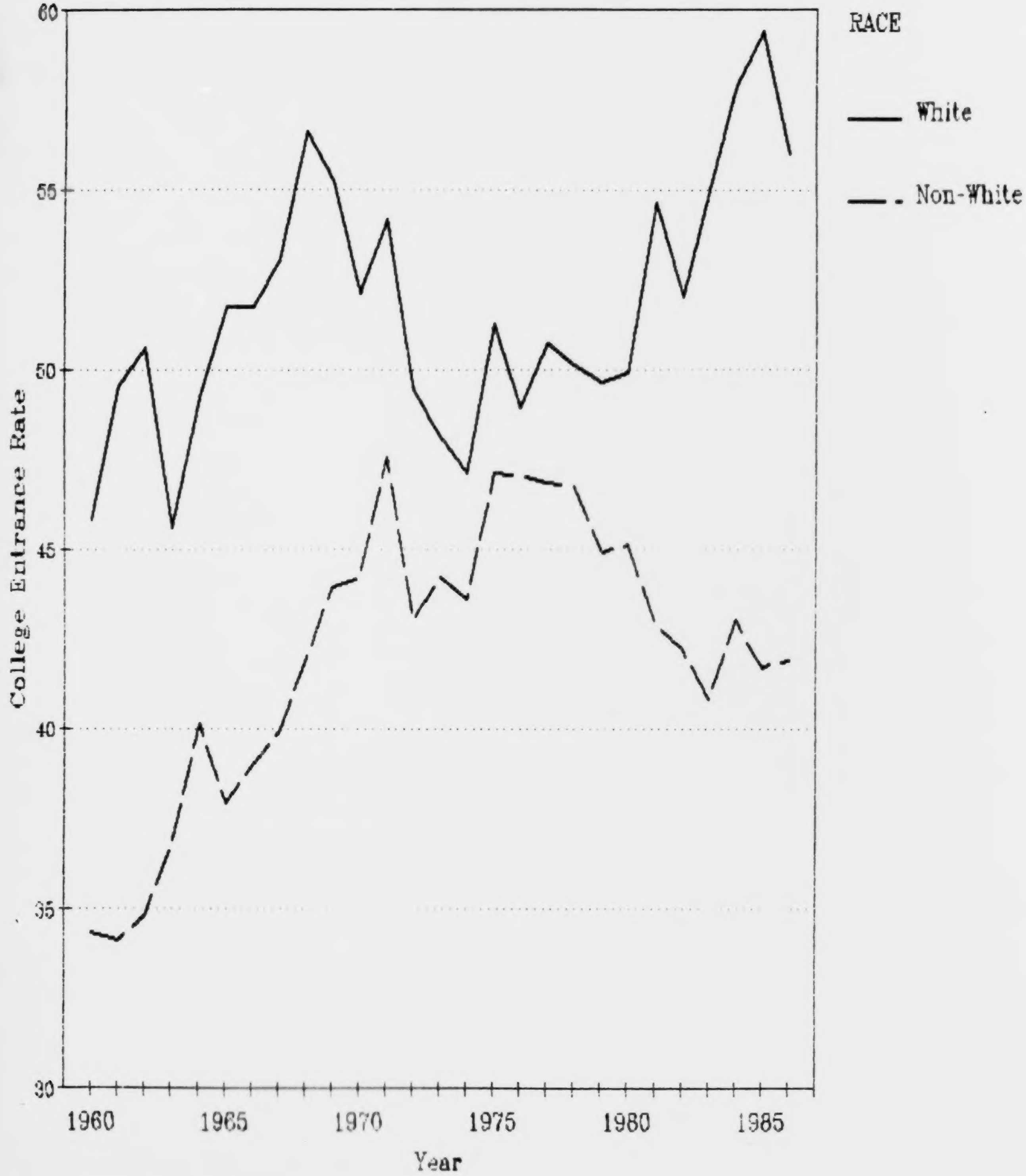
Source: U.S. Dept. of Labor (Sharon Cohany)

During the 1960s, the difference between the white and non-white college participation rate averaged about 13 percent. This access gap then nearly closed during the first half of the 1970s and remained nearly closed through 1979. Between 1974 and 1979, the access gap for non-whites averaged .8% below the rate for whites. However, beginning in 1980, the access gap between whites and non-whites began to widen. For the last five years - 1982 to 1986 - the non-white access gap has averaged about 13%, or the same difference that existed from 1960 to 1969. The access gap that widened between 1978 and 1984 occurred when the white college going rate increased while the non-white rate decreased. These relationships are shown in Figures 3 and 4 on the following pages.

The remaining sections of this paper explore the higher education enrollment motivation of enrolled college freshmen by racial categories. In particular, between 1978 and 1984, when college access rates diverged between whites and blacks, the changing motivations are studied for notable divergence between whites and blacks.

Figure 3

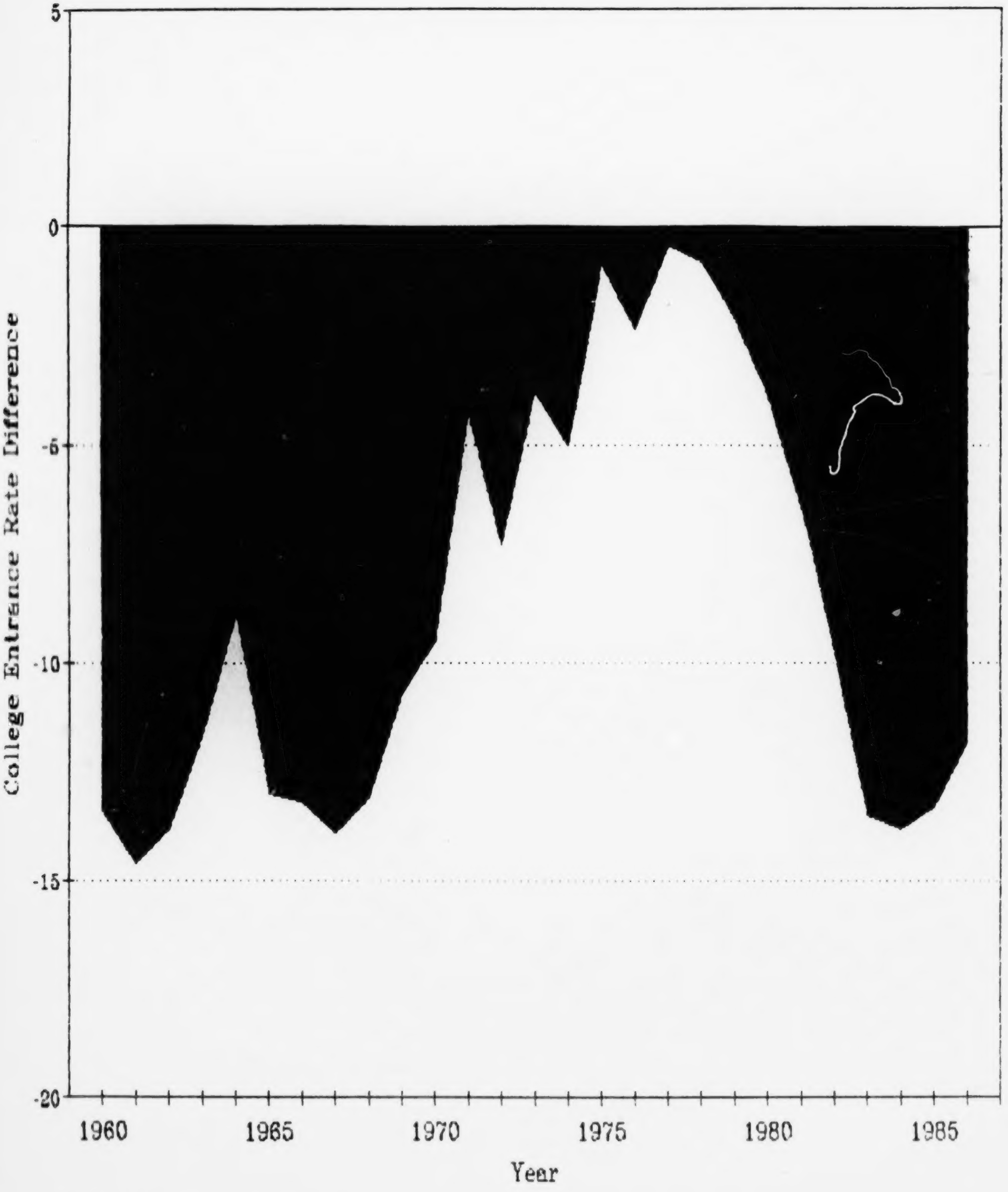
COLLEGE ENTRANCE RATES BY RACE
1960-1986



Data from Current Population Survey, by Bureau of Labor Statistics

Figure 4

COLLEGE ACCESS GAP FOR NON-WHITES
1960-1986



Source: BLS. Data is a moving three year average.

College Enrollment Motivation

In our social/economic/political systems, individuals face and make choices. They decide among those choices on the basis of a variety of influences. Social scientists examine this choice process from many perspectives: motivation, stimulation, learning response, utility, sensation, and others. Economists view choice from the particular perspective of utility where individuals are perceived to act in their self-interest to maximize their own welfare. The set of goals, values and preferences of individuals that lead them to make choices to maximize their private ends is their utility function.

While individuals may have difficulty being specific about their respective utility functions, their choices reveal values, motivations and utility. Thus, this study will 1) compare and contrast the life goals and values, reasons for attending college, reasons for choosing a particular college, and academic expectations of college freshmen by racial/ethnic category, and more importantly, 2) examine changes in these expressions of utility over the period from 1978 to 1984 when white college entrance rates were increasing and black rates were decreasing.

This analysis suffers from a potentially serious conceptual flaw. That is, the reasons why blacks are not attending college will be assessed by analyzing the motivations of other blacks who have continued to enroll in higher education. Ideally, the motivation of those who have decided not to enroll but would have if college access equity had been sustained should be studied. Unfortunately, such data do not exist. As a result the available data on enrolled freshmen are studied to infer the changes in motivation that have led others not to enroll in college. In fact, this flaw is not fatal. As the reader will discover, the changes in motivation reported by enrolled white and black college freshmen do suggest why other blacks are not enrolled in higher education.

Life Goals and Values

Since 1966, CIRP-surveyed freshmen have been asked each year to identify the importance of a variety of personal, career, social, and creative goals and values to their lives. Generally, enrolled freshmen give greatest weight to career and personal objectives, and least weight to what are classified here as creative objectives. Long-term trends in the goals and values of American college freshmen are shown in Table 1 on the following page.

Figure 5 shows how white and black college freshmen weighted different areas of life goals and values in 1984. Generally, enrolled white and black college freshmen gave similar weight to goals and values. For each group - personal, career, social and creative - both whites and blacks prioritized objectives similarly. Some differences do occur, however. Blacks tend to give somewhat greater weight to most goals and values than do whites. This is particularly evident in social goals and values where about 30% of white college freshmen said this area was essential or very important to their lives, compared to over 40% for black college freshmen.

Table 1
Objectives Considered to be Essential or Very Important Among American College Freshmen
1966-1986

1986 Rank	Objectives	Percent Responding Essential or Very Important 1966	1970	1975	1980	1986
1	Be very well off financially	43.8%	39.1%	49.5%	63.3%	73.2%
2	Become authority in my field	66.0	66.8	69.7	73.1	71.8
3	Raise a family		67.5	56.6	63.1	67.0
4	Help others in difficulty	68.5	64.9	66.0	64.7	57.2
5	Obtain recognition from colleagues	42.6	39.9	43.2	54.4	54.7
6	Succeed in my own business	53.0	43.9	43.6	49.3	49.0
7	Have administrative responsibility	28.6	21.7	30.6	38.7	44.2
8	Develop a philosophy of life		75.6	64.2	50.4	40.6
9	Influence social values		34.0	30.0	32.2	32.5
10	Promote racial understanding				33.1	27.2
11	Be expert in finance/commerce	13.5	15.8			25.2
12	Participate in community action		29.4	30.4	27.4	18.5
13	Be involved in environmental cleanup			28.8	26.7	15.9
14	Influence political structure		18.3	14.4	16.2	14.5
15	Contribute to scientific theory	13.3	10.2	13.5	14.9	12.6
16	Write original works	14.2	14.0	12.1	12.5	11.3
17	Create artistic work	15.1	16.2	14.2	14.4	10.9
18	Achieve in a performing art	10.8	12.8	11.7	12.0	10.5

As shown in Figure 6, between 1978 and 1984, the importance assigned to each of these goal areas has shifted. For both whites and blacks, personal goals and values became more important between 1978 and 1984. Similarly, social and creative objectives became less important for both whites and blacks during this time period.

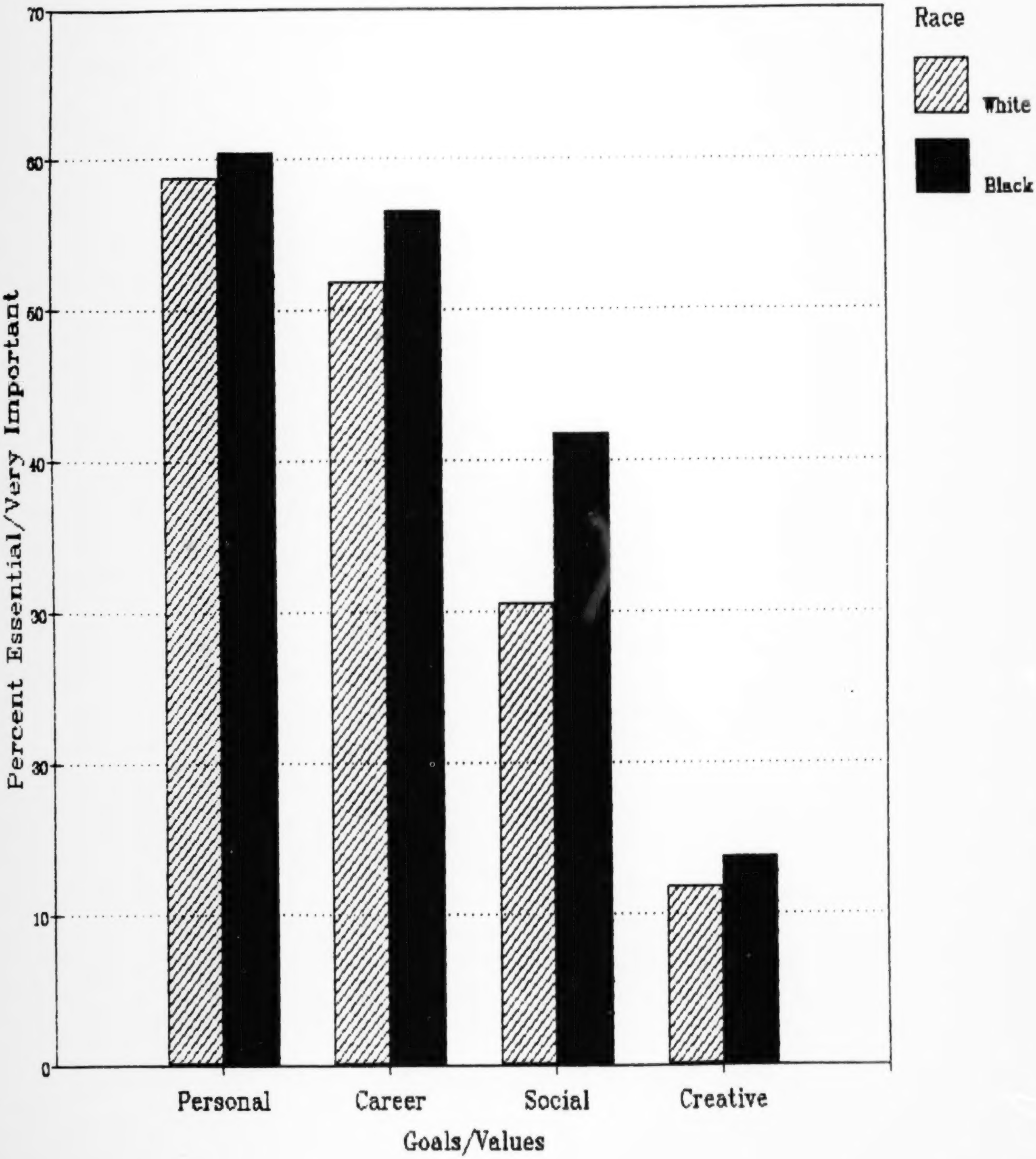
However, whites identified career objectives as more important, while blacks identified them as less important, between 1978 and 1984. During this period, whites gave notably greater weight to "having administrative responsibility for the work of others" and "obtaining recognition from my colleagues for contributions to my special field." Blacks, on the other hand, gave notably less weight to these same two objectives. On none of the other 16 life goals and values do whites and blacks differ as substantially as they do on these two.

Details of the responses of whites and blacks to the 18 life goals and values for 1971, 1976, 1978, 1980, 1982 and 1984 are shown in tables A-3 and A-4 in the Appendix.

Figure 5

LIFE GOALS AND VALUES OF WHITE AND BLACK AMERICAN COLLEGE FRESHMEN

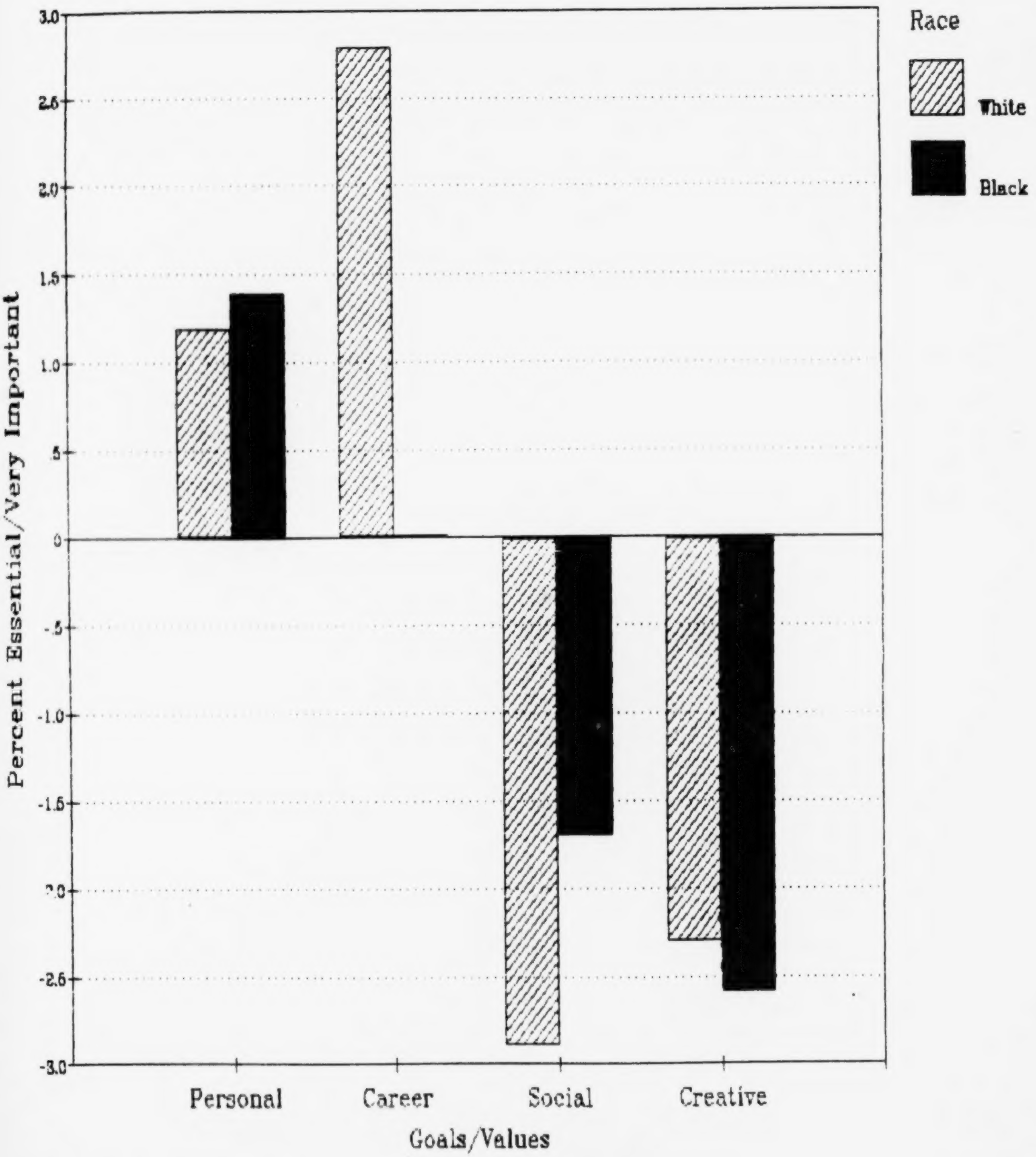
1984



Source: CIRP

Figure 6

CHANGES IN LIFE GOALS AND VALUES OF WHITE AND BLACK AMERICAN COLLEGE FRESHMEN 1978 TO 1984



Source: CIRP

Reasons for Attending College

The second area of collegiate enrollment motivation on which data are collected in the annual CIRP survey concerns reasons for attending college. This question was first asked in 1971 and has been asked each year since 1976. This question was redesigned on the survey instrument in 1985 and this alteration limits the comparability of the 1971-84 data with data collected beginning in 1985. The overall trends for the period between 1971 and 1986 are shown in Table 2 below.

Table 2
Reasons for Attending College Reported to be Very Important
by American College Freshmen

1986 Rank	Reasons for Attending College	Percent Very Important 1971	1976	1981	1986
1	Get a better job	73.8%	71.0%	76.3%	83.1%*
2	Learn more about things	68.8	72.9	73.3	74.1
3	Make more money	49.9	53.8	67.0	70.6
4	Gain general education	59.5	64.0	67.4	61.6*
4	Meet new and interesting people	45.1	53.5	55.4	
5	Prepare for graduate school	34.5	43.9	45.4	47.1
6	Improve reading-study skills	22.2	35.1	39.7	40.3
7	Become a more cultured person	28.9	32.8	33.5	32.2
8	Parents wanted me to go	22.9	29.3	32.5	16.9*
9	Get away from home		9.1	9.5	9.4*
10	Could not find a job		5.7	5.8	3.9*
11	Nothing better to do	2.2	2.6	2.3	2.5

*1986 responses that were most affected by the 1985 redesign of this question on the CIRP survey instrument.

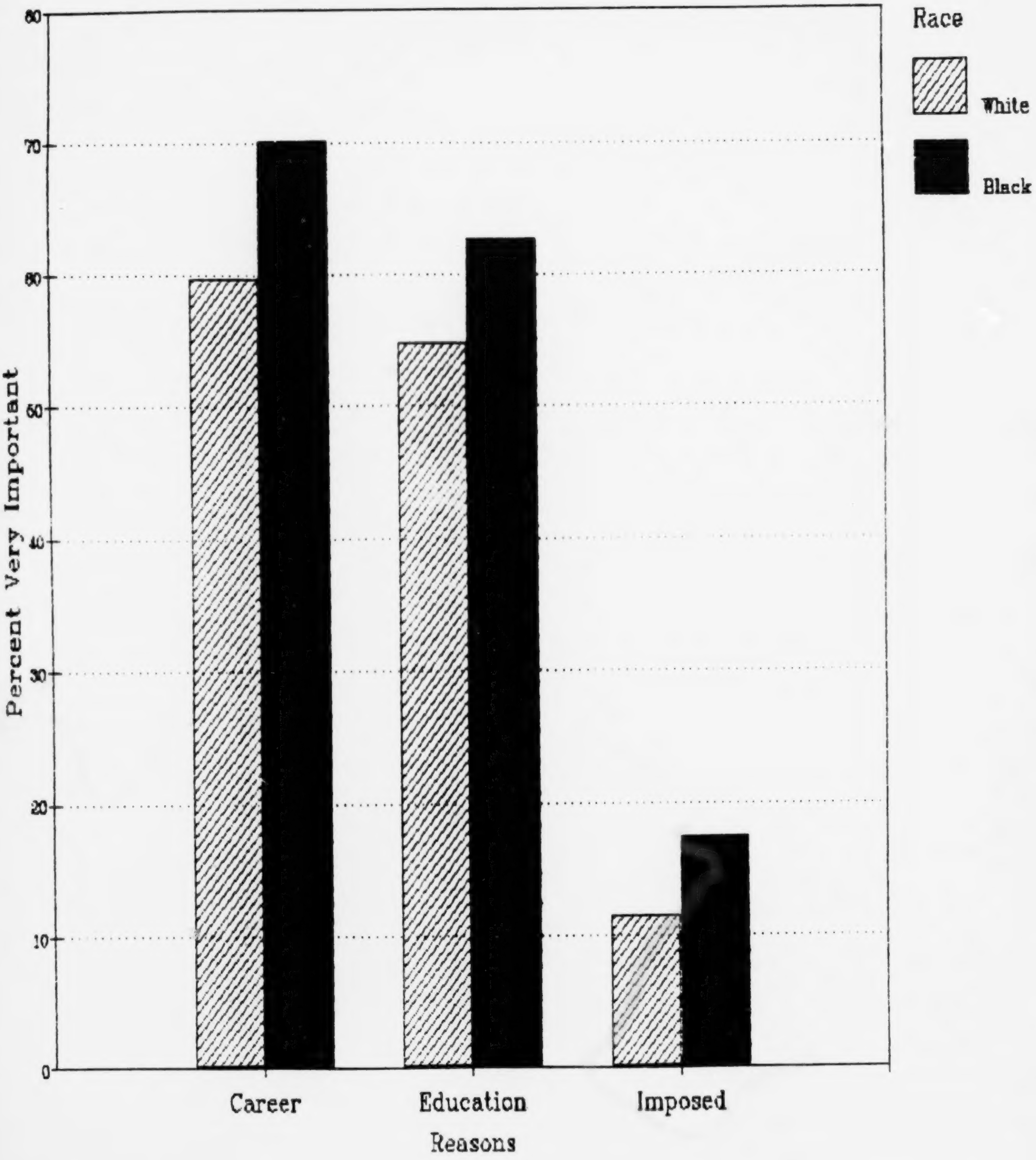
Figures 7 and 8 show the importance of reasons for attending college of white and black college freshmen in 1984, and changes between 1978 and 1984. Figure 7 shows that the importance of reasons for attending college of whites and blacks in 1984 were generally similar. For both groups, career motivations were most important, and imposed motivations were least important. Again, blacks gave greater weight to all reasons for attending college than did whites, implying greater motivation to attend college.

However, between 1978 and 1984 college attendance motivation shifted significantly between whites and blacks. White college freshmen reported that career reasons were more important in 1984 than in 1978, while black freshmen reported that they were less important. White freshmen reported little change in general educational reasons for attending college, but black freshmen gave less weight to these reasons. White freshmen gave greater weight to imposed reasons (e.g. parents wanted me to go, wanted to get away from home), while black freshmen said these were less important.

Clearly black freshmen reported less strength of motivation to attend college in 1984 than they did in 1978. While this deterioration in motivation covers all categories, it is most pronounced among career reasons. In order of importance, blacks reported that "to make more money" had lost most value to their reasons for attending college, followed by "prepare for graduate/professional school" and "to get a better job."

Figure 7

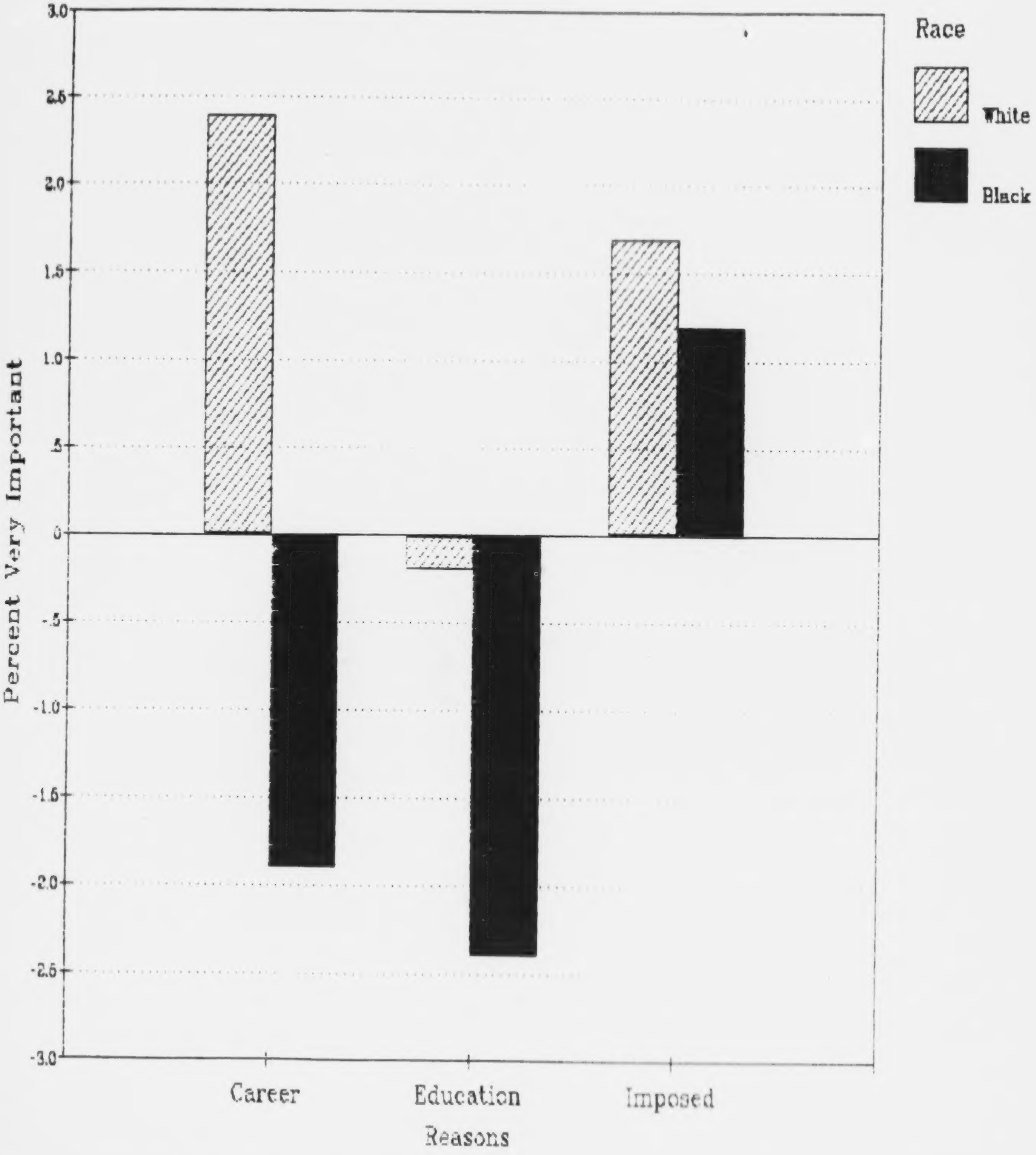
REASONS FOR ATTENDING COLLEGE OF WHITE AND BLACK AMERICAN COLLEGE FRESHMEN 1984



Source: CIRP

Figure 8

CHANGES IN REASONS FOR ATTENDING COLLEGE OF
WHITE AND BLACK AMERICAN COLLEGE FRESHMEN
1978 TO 1984



Source: CIRP

Reasons for Choosing a Particular College

The academic reputation of an institution is the most important reason cited by college freshmen in choosing the particular institution where they are enrolled. Generally, institutional characteristics prevail, followed by financial considerations. Advice from people comes last in importance in choosing a college.

Table 3
Reasons for Choosing the College of Enrollment Reported to be
Very Important to American College Freshmen

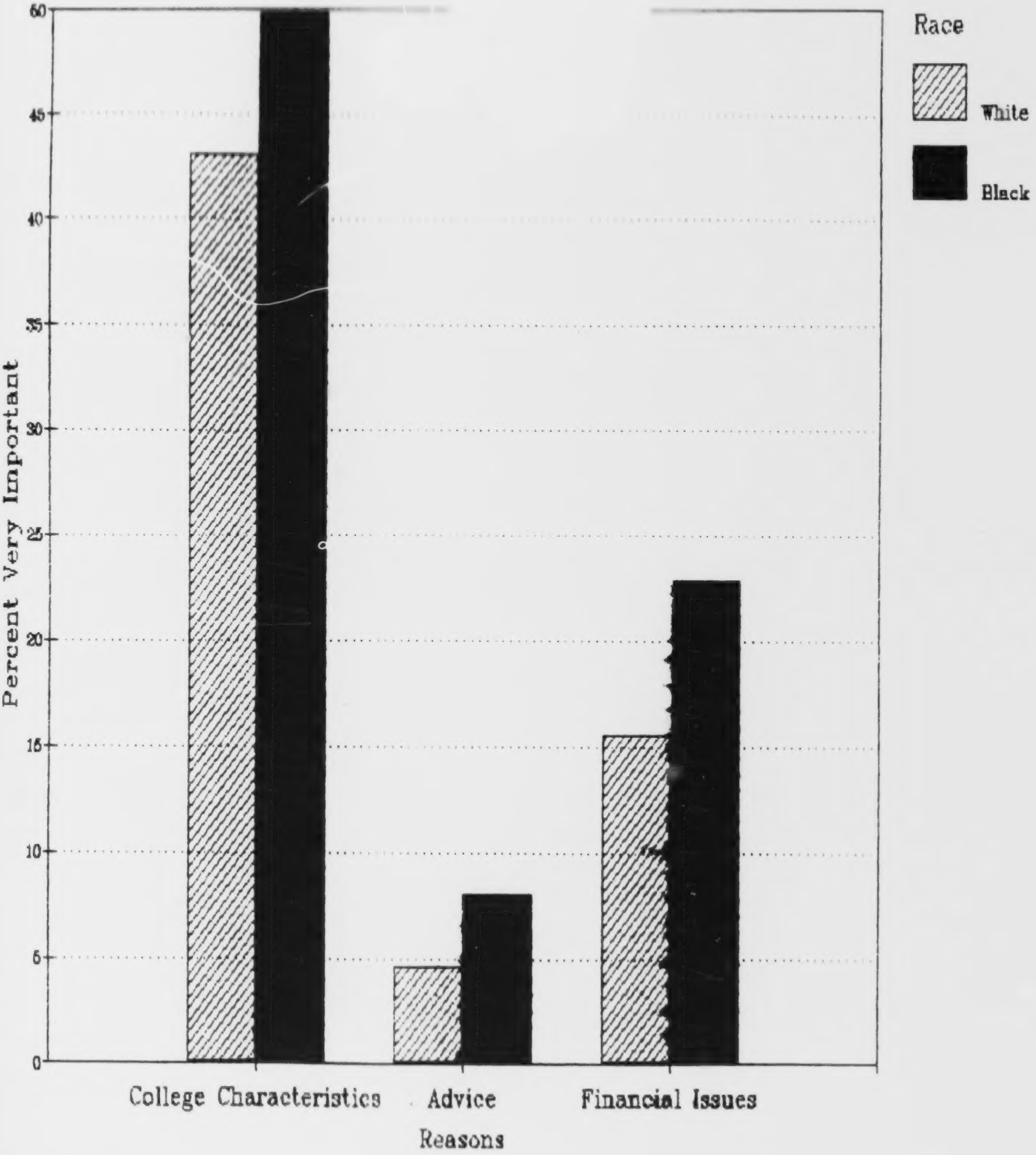
1986 Rank	Reason for Choosing College	Percent Very Important 1966	1971	1976	1981	1986
1	Has good academic reputation		36.1%	43.1%	53.0%	59.2%
2	Graduates get good jobs					46.8
3	Has good social reputation	8.2				27.2
4	Grads go to top graduate schools					25.8
5	Special educational program		32.6	25.3	26.6	23.5
6	Low Tuition		18.8	18.0	17.7	22.4
7	Offered financial assistance			13.6	15.4	21.5
8	Wanted to live near home		12.2	11.6	10.5	18.8
9	Friend suggested attending	20.1		7.2	7.2	8.4
9	Advice of guidance counselor	20.0	7.2	7.5	7.6	8.4
11	Relative wanted me to go	23.5	7.8	6.8	6.6	7.7
12	Teacher advised me			4.2	4.1	4.4
13	College rep recruited me	7.3		3.9	4.6	3.7

Both white and black American college freshmen focus on college characteristics, particularly the academic reputation of the institution, in choosing a particular college in which to enroll. Similar to Figures 5 and 7, Figure 9 shows that the general priorities of whites are the same as the priorities of blacks regarding college choice. Blacks responded that the factors cited were more often very important to them in selecting a college than did whites.

Between 1978 and 1984, financial reasons significantly increased in importance for both whites and blacks in choosing a college (Figure 10). The increase was greatest among blacks. College characteristics - particularly the academic reputation of the institution - became more important for blacks. For whites, the increased importance of the institution's academic reputation was largely offset by notably decreased importance attached by whites to special educational programs offered by the institution.

FI

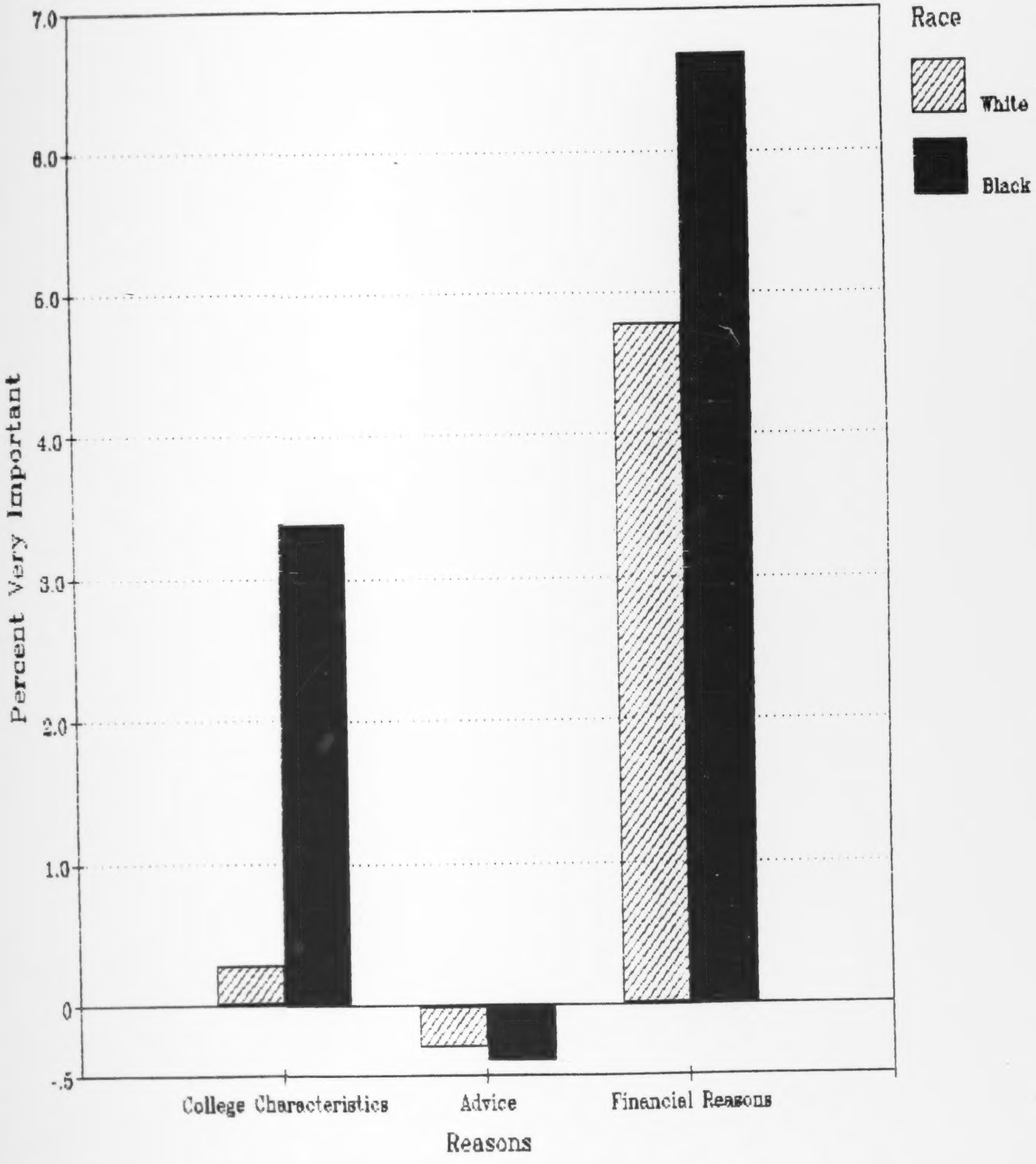
REASONS FOR CHOO OLLEGE OF WHITE AND BLACK AMERIC G E FRESHMEN



Source: CIRP

Figure 10

CHANGES IN REASONS FOR CHOOSING THIS COLLEGE WHITE AND BLACK AMERICAN COLLEGE FRESHMEN 1978 TO 1984



Source: CIRP

Academic Expectations

In the CIRP survey, college freshmen have consistently reported optimism that they will be successful during and after college. Moreover, as the following data suggest, today's college freshmen appear to be more optimistic now than they have been in the past.

Table 4
Academic Expectations of American College Freshmen

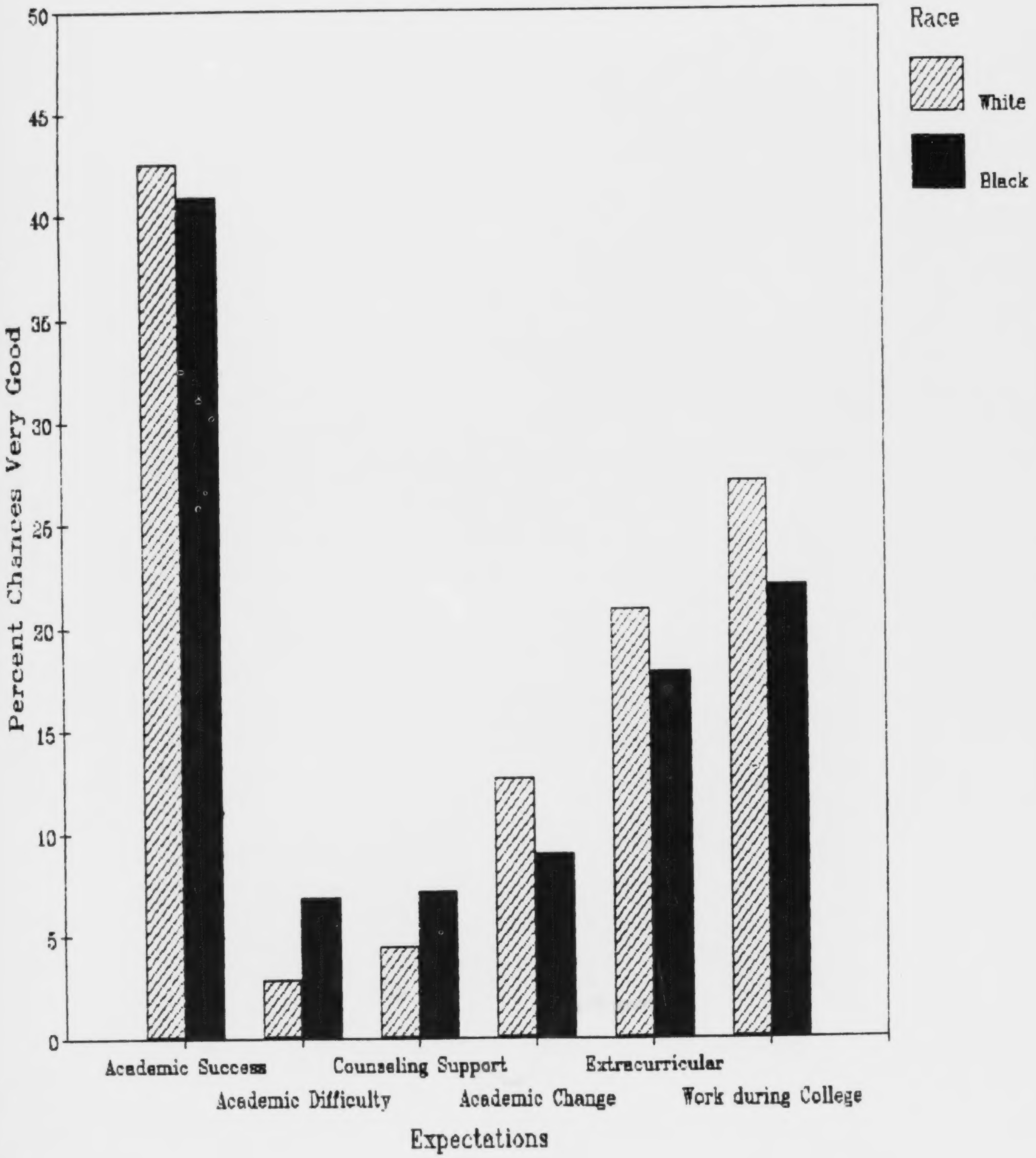
1986		Percent Chances Very Good				
Rank	Activity/achievement:	1967	1972	1976	1981	1986
1	Find job in field trained		52.4%	59.8%	70.8%	69.6%
2	Get a bachelors degree		60.3	61.7	64.8	66.9
3	Be satisfied with this college		59.4	50.8	55.8	53.6
4	Make at least a B average		32.7	40.6	40.6	40.0
5	Get a job to help pay college expenses			40.4	40.7	37.5
6	Live in a coeducational dorm			20.0	28.8	28.4
7	Have to work at an outside job			25.8	23.4	21.1
8	Join social fraternity, sorority	30.8	17.3	15.3	18.1	17.9
9	Get married within a year of college	22.9	16.9	16.0	17.2	15.8
10	Change major field	16.6	16.5	11.4	12.1	13.1
11	Change career choice	17.6	17.0	11.2	11.5	12.3
12	Graduate with honors	3.7	7.8	11.0	11.2	12.1
13	Get tutoring help in specific courses			7.8	9.8	11.2
14	Transfer to another college	13.0	13.0	13.3	11.1	10.7
15	Be elected to an academic honor soc.	2.9	4.5	6.5	7.4	7.3
16	Need extra time to complete degree		4.8	4.7	5.6	6.3
17	Seek vocational counseling		13.0	7.2	6.1	6.0
18	Get married while in college	7.6	7.6	5.5	5.1	4.6
19	Seek personal counseling		6.2	4.0	4.1	4.0
20	Be elected to a student office	2.3	1.9	2.2	2.8	3.4
21	Fail one or more courses	2.9	2.6	1.8	1.7	1.4
22	Drop out of this college temporarily	1.1	1.8	1.5	1.3	1.2
23	Drop out permanently	.6	1.1	1.0	1.0	.8

Figure 11 compares the academic expectations of white and black American college freshmen in 1984. Generally, the expectations of whites and blacks are similar: among the six categories of expectations used here, both whites and blacks rank expectations identically. Subtle differences, however stand out. Whites think chances are better than blacks do for academic success, work during college, extracurricular involvement and academic major program change. Blacks are more likely than whites to expect academic difficulty and to need counseling support during college.

Between 1978 and 1984, white and black academic expectations shifted on several major dimensions. White freshmen became somewhat less optimistic about academic success, while black freshmen reported greater optimism about academic success. In particular, whites were less optimistic about finding a job in the field for which they were trained. Blacks, on the other hand were more optimistic that they would get at least a B average, get a bachelors degree, and find a job in their field of training.

Figure 11

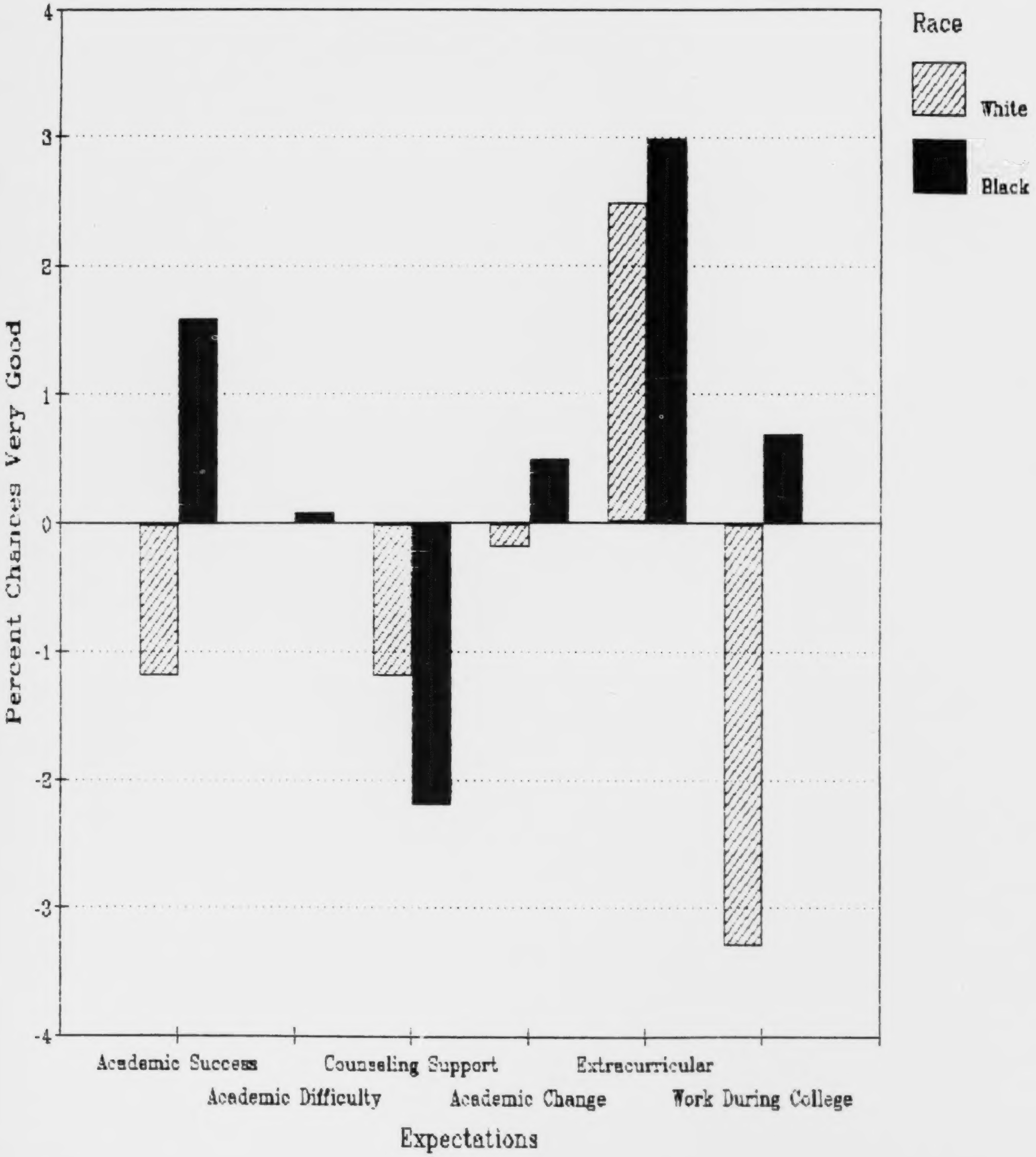
ACADEMIC EXPECTATIONS
OF WHITE AND BLACK AMERICAN COLLEGE FRESHMEN
1984



CIRP

Figure 12

CHANGES IN ACADEMIC EXPECTATIONS OF WHITE AND BLACK AMERICAN COLLEGE FRESHMEN 1978 TO 1984



Source: CIRP

Conclusions and Discussion

The divergence between white and non-white college entrance rates that occurred between 1979 and 1984 erased the gains in access equity that were achieved by non-whites between 1969 and 1976. Unlike the equity status achieved by women compared to men, which has survived at least through 1985, the equity of access status briefly achieved by non-whites during the late 1970s has since disappeared. The access gap for non-whites since 1983 is similar to the access gap that existed during the 1960s. To the extent that human behavior has causes that can be identified, this study seeks to examine differences and changes in motivation for college enrollment behavior between whites and non-whites during the period of diverging college entrance behavior.

The economic model of college education investment benefits and costs provides the framework used to examine and interpret the observed growth in enrollment disparity between 1978 and 1984. The investment theory of college enrollment behavior may be stated as follows:

> A prospective college student will enroll in higher education if the present value of the current and future benefits resulting from college exceed the present value of the current and future costs of college attendance.

That is to say, a qualified student will enroll in college if college is a good investment and he or she can afford it.

Benefits: The benefits of college sought by college freshmen are evident in Table 2: to get a better job, to learn more about things, to make more money, to gain a general education, etc. The highest rated benefits have been classified into two groups: career and general educational benefits. Generally, career reasons are most important and have become more so recently, and general education reasons are somewhat less important and have not become more important reasons for attending college.

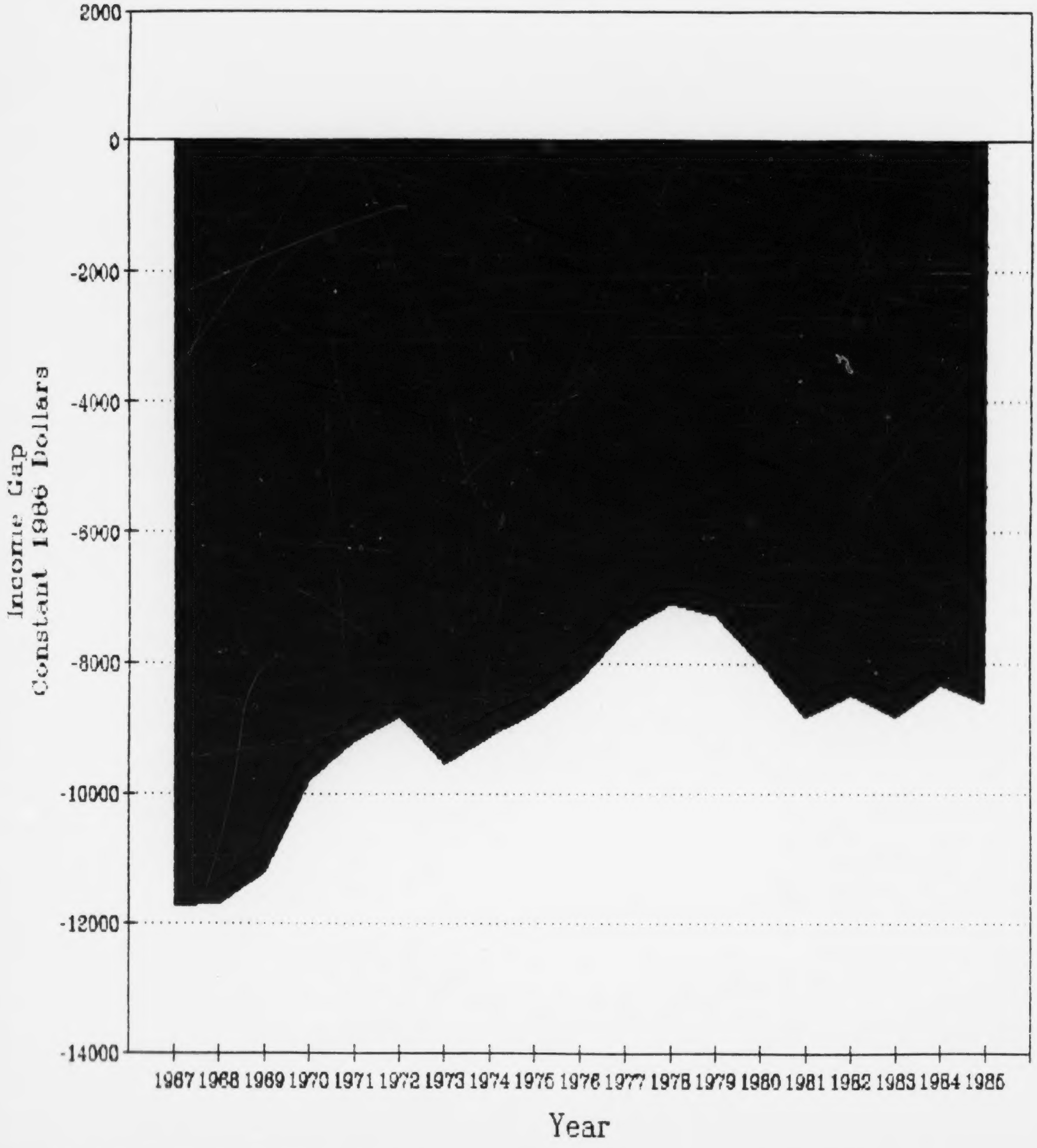
Clearly, whites' and blacks' valuations of career importance changed between 1978 and 1984. In terms of life goals and values, white college freshmen in 1984 reported that career objectives had become more important to them than they were in 1978. Blacks reported no change. In terms of reasons for attending college, again whites reported that career reasons had become more important reasons for attending college in 1984 than they were in 1978. Blacks reported the opposite: career reasons were less important in 1984 than they had been in 1978.

Further analysis of the detail of the items constituting career reasons for attending college shows that whites and blacks differed most notably in response to the item "to be able to make more money." Among whites, 6.2% more said this was a very important reason for attending college in 1984 than had given this reason in 1978. Only .9% more blacks said so.

This suggests a difference in the expected return on a college investment that whites and blacks experienced between 1978 and 1984. In fact, Census Bureau data on income for college educated whites and blacks

Figure 13

INCOME GAP FOR BLACK MALES COMPARED TO WHITE MALES WITH 4 OR MORE YEARS OF COLLEGE EDUCATION IN CONSTANT 1986 DOLLARS 1967-1985



Sources: CPI from BLS, income from Census Bureau.

provide evidence that supports this interpretation. Figure 13 shows the income gap between white and black males with 4 years or more of college over the period from 1967 to 1986. This income gap shows not only that black males earn considerably less than white males but that this income gap has increased since 1978. This difference is striking: in 1978, the income gap was $6192 (in constant 1986 dollars). By 1984 it had increased to $9368. For black males, a college investment does not offer the economic return that it offers to white males. Moreover, the gap has widened; college educated black males who earned 81% of what white males earned in 1978 were earning 71% of white male income by 1984. Black males were getting even less of a return on their college educations in 1984 than they were in 1978. See Table A-5 in the Appendix for data detail and source.

The picture for white and black women differs in some respects from the picture for white and black men, but only in ways that support the economic investment interpretation of college enrollment behavior. In fact, black women with four years or more of college out earn white women with similar educational attainment by a substantial margin. The explanations are largely related to labor force participation; black women with a college education are more likely to be employed year-round, full-time than are white women with a college education (although this is changing for white women). When the incomes of year-round, full-time working white and black women are compared, white women earn more than black women. Table A-6 in the Appendix provides data, additional detail and sources on income of college educated white and black women.

For both black men compared to white men, and for black women compared to white women, the return on a college investment decision has declined since 1978. Between 1978 and 1984, real incomes for college educated white men increased by 1%, while for black men they decreased by 4%. During this same period, real incomes for college educated white women increased by 14% while for black women incomes increased by 3%.

In terms of the economic investment theory of college enrollment demand, this factor alone accounts for a substantial portion of the increase in white college participation rates and the decline in black college participation rates. Blacks behave as if they are aware of their declining rate of return on their college education investment. This awareness is reflected both in their responses to CIRP survey questions on the career reasons for attending college as well as the choice of many black high school graduates not to make the investment in a college education. The difference between white and black male and female earnings also explains why black women outnumber black men in higher education by a two-to-one ratio.

Costs: Whites and blacks differ in their economic circumstances in ways that suggest they will respond to college costs differently. Average black family income in the United States is about 58% of average white family income. Blacks, therefore, are more dependent on financial aid to finance the investment in a college education than are whites.

In the CIRP survey, both whites and blacks reported greater importance of college cost issues in choosing a college in 1984 than they did in 1978 - and blacks more so than whites. Both whites and blacks reported that being able to live at home was a more important factor in college choice in 1984 than it had been in 1978. Similarly, both groups also reported that the institutional offer of financial aid and the presence of low tuition were more important in 1984 than they had been in 1978. Whites and blacks differed, however, in how they expected to face these cost pressures: whites reported that they thought it less likely that they would have to get a job to help pay college expenses in 1984 than they did in 1978. Blacks thought it more likely that they would have to work to pay these expenses.

Comprehensive data on the amount, form, timing, acceptability and accessibility of financial aid for whites and blacks between 1978 and 1984 are not available. However, low income aid applicants are most heavily dependent on Pell Grant funds to finance their college costs.

Table 5 illustrates how students from families at different income levels qualified for Pell Grants to attend different types/costs of higher educational institutions. This table highlights how Pell Grants a) covered different portions of college costs in different types of institutions, and therefore affected college choice, and b) generally lost purchasing power with respect to the college attendance costs faced by students, and thereby influenced both college access and choice.

For example, a student from a family of four whose income was at the Bureau of Labor Statistics lower family budget level in 1978 would have received a Pell Grant that would have covered 32.7% of his or her college budget at a public university for the 1978-79 academic year. By 1979-80, due only to changes in the Pell Grant Program, the Pell Grant received by the student would have covered 42.2% of the college budget. However, sharp cutbacks in the Pell Grant formulas and payment schedules would have reduced the student's Grant to 22.4% of the public university college budget by 1982-83. And subsequent changes would have increased the student's Pell Grant only to 23.6% by 1984-85. Thus, the most important form of financial aid for a student from a family whose income could not be expected to cover college costs had lost between a third and half of its purchasing power by 1984.

Traditional economic investment theory tells us where to look for explanations why white and black college entrance behavior diverged between 1978 and 1984. In the context of this theory, empirical data direct us toward these two conclusions:

1. The primary reason why white college entrance rates increased and black college entrance rates decreased between 1978 and 1984 was due to the increased return for whites, especially females, on their college investment. Blacks, especially males, faced a lower return on a college investment, and therefore many declined to pursue collegiate education after high school.

2. In addition to a decreased return, blacks from lower family income backgrounds are therefore more dependent on financial aid to help pay college costs received less Pell Grant assistance to help pay their college attendance costs.

Table 5

DEPENDENT PELL GRANT ELIGIBILITY AT POVERTY LEVEL FAMILY INCOME AND BUREAU OF LABOR STATISTICS LOWER, INTERMEDIATE AND HIGHER FAMILY BUDGETS

		Fall of Academic Year						
		1978	1979	1980	1981	1982	1983	1984
COLLEGE BUDGETS(a)								
Public 2 Year/Commuter				$2,753	$2,829	$3,176	$3,400	$3,423
Public 4 Year/Resident		$3,054	$3,258	$3,409	$3,873	$4,388	$4,721	$4,881
Private 2 Year/Resident		$4,264	$4,552	$4,592	$5,604	$5,751	$6,609	$7,064
Private 4 Year/Resident		$5,110	$5,526	$6,082	$6,885	$7,475	$8,440	$9,022
POVERTY LEVEL FAMILY INCOME(b)		$6,191	$6,662	$7,412	$8,414	$9,287	$9,862	$10,178
Family Contribution (SEI/SAI)		$0	$0	$0	$60	$69	$61	$61
Public 2 Year	Pell Grant	$954	$938	$938	$908	$1,038	$1,060	$1,275
	% of Budget			34.1%	32.1%	32.7%	31.2%	37.2%
Public 4 Year	Pell Grant	$1,238	$1,312	$1,312	$1,458	$1,604	$1,725	$1,850
	% of Budget	40.5%	40.3%	38.5%	37.6%	36.6%	36.5%	37.9%
Private 2 Year	Pell Grant	$1,600	$1,800	$1,750	$1,596	$1,604	$1,725	$1,850
	% of Budget	37.5%	39.5%	38.1%	28.5%	27.9%	26.1%	26.2%
Private 4 Year	Pell Grant	$1,600	$1,800	$1,750	$1,596	$1,604	$1,725	$1,850
	% of Budget	31.3%	32.6%	28.8%	23.2%	21.5%	20.4%	20.5%
BLS LOWER FAMILY BUDGET(b)		$10,481	$11,546	$12,585	$14,044	$15,323	$16,262	$16,786
Family Contribution (SEI/SAI)		$660	$416	$415	$554	$633	$674	$704
Public 2 Year	Pell Grant	$962	$938	$888	$908	$983	$1,060	$1,150
	% of Budget			32.3%	32.1%	31.0%	31.2%	33.6%
Public 4 Year	Pell Grant	$1,000	$1,376	$1,312	$1,096	$983	$1,125	$1,150
	% of Budget	32.7%	42.2%	38.5%	28.3%	22.4%	23.8%	23.6%
Private 2 Year	Pell Grant	$1,000	$1,376	$1,326	$1,096	$983	$1,125	$1,150
	% of Budget	23.5%	30.2%	28.9%	19.6%	17.1%	17.0%	16.3%
Private 4 Year	Pell Grant	$1,000	$1,376	$1,326	$1,096	$983	$1,125	$1,150
	% of Budget	19.6%	24.9%	21.8%	15.9%	13.2%	13.3%	12.7%
BLS INTERMEDIATE FAMILY BUDGET(b)		$17,106	$18,622	$20,517	$23,134	$25,407	$26,965	$27,832
Family Contribution (SEI/SAI)		$2,105	$1,007	$1,066	$1,304	$1,818	$1,980	$2,114
Public 2 Year	Pell Grant	$0	$776	$676	$426	$0	$0	$0
	% of Budget			24.6%	15.1%			
Public 4 Year	Pell Grant	$0	$776	$676	$426	$0	$0	$0
	% of Budget		23.8%	19.8%	11.0%			
Private 2 Year	Pell Grant	$0	$776	$676	$426	$0	$0	$0
	% of Budget		17.0%	14.7%	7.6%			
Private 4 Year	Pell Grant	$0	$776	$676	$426	$0	$0	$0
	% of Budget		14.0%	11.1%	6.2%			

(a) Data from College Board surveys. These are NOT Pell budgets.
(b) Family of 4, with 1 wage earner, 1 in college, no assets.

TABLE A-1
COLLEGE ENTRANCE RATES FOR RECENT HIGH SCHOOL GRADUATES BY GENDER
1959-1986

(numbers in thousands)

	Total High School Graduates			Number Enrolled in College			College Entrance Rates			Women Less Men
Year	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men
1959	664	791	1,455	360	305	665	54.2%	38.6%	45.7%	-15.6%
1960	756	923	1,679	408	350	758	54.0	37.9	45.1	-16.1
1961	790	973	1,763	445	402	847	56.3	41.3	48.0	-15.0
1962	872	966	1,838	480	420	900	55.0	43.5	49.0	-11.5
1963	794	947	1,741	415	369	784	52.3	39.0	45.0	-13.3
1964	997	1,148	2,145	570	467	1,037	57.2	40.7	48.3	-16.5
1965	1,254	1,405	2,659	718	636	1,354	57.3	45.3	50.9	-12.0
1966	1,207	1,405	2,612	709	600	1,309	58.7	42.7	50.1	-16.0
1967	1,142	1,383	2,525	658	653	1,311	57.6	47.2	51.9	-10.4
1968	1,184	1,422	2,606	748	696	1,444	63.2	48.9	55.4	-14.3
1969	1,352	1,490	2,842	812	704	1,516	60.1	47.2	53.3	-12.9
1970	1,343	1,414	2,757	741	686	1,427	55.2	48.5	51.8	-6.7
1971	1,369	1,503	2,872	788	747	1,535	57.6	49.7	53.4	-7.9
1972	1,420	1,541	2,961	749	708	1,457	52.7	45.9	49.2	-6.8
1973	1,458	1,601	3,059	730	695	1,425	50.1	43.4	46.6	-6.7
1974	1,491	1,610	3,101	736	738	1,474	49.4	45.8	47.5	-3.6
1975	1,513	1,673	3,186	796	819	1,615	52.6	49.0	50.7	-3.6
1976	1,450	1,537	2,987	685	773	1,458	47.2	50.3	48.8	3.1
1977	1,482	1,658	3,140	773	817	1,590	52.2	49.3	50.6	-2.9
1978	1,485	1,676	3,161	758	826	1,584	51.0	49.3	50.1	-1.7
1979	1,474	1,686	3,160	743	816	1,559	50.4	48.4	49.3	-2.0
1980	1,500	1,589	3,089	701	823	1,524	46.7	51.8	49.3	5.1
1981	1,490	1,563	3,053	816	830	1,646	54.8	53.1	53.9	-1.7
1982	1,508	1,592	3,100	739	829	1,568	49.0	52.1	50.6	3.1
1983	1,390	1,574	2,964	721	841	1,562	51.9	53.4	52.7	1.5
1984	1,429	1,583	3,012	800	862	1,662	56.0	54.5	55.2	-1.5
1985	1,286	1,380	2,666	754	785	1,539	58.6	56.9	57.7	-1.7
1986	1,331	1,455	2,786	744	755	1,499	55.9	51.9	53.8	-4.0

Notes:

(1) Published and unpublished data supplied by Sharon Cohany, Economist, Bureau of Labor Statistics, Office of Employment and Unemployment Analysis, Washington, D.C., 202/523-1944. This information is collected each October as a special supplement to the Current Population Survey. The Survey is administered by the Bureau of the Census.

(2) Data includes civilian population only. Data reflect status of enrolled in college as of October of each year for individuals age 16 to 24 who graduated from high school during the previous twelve months. College means a degree granting higher educational institution, and does not include business, trade or other forms of vocational postsecondary education.

(3) Not enrolled in college includes those in the labor force (employed or seeking employment), keeping house, other types of postsecondary education other than college, disabilities, and discouraged workers.

TABLE A-2
COLLEGE ENTRANCE RATES FOR RECENT HIGH SCHOOL GRADUATES BY RACE/ETHNICITY
1960-1986
(numbers in thousands)

	Total High School Graduates					Number Enrolled in College					College Entrance Rates					Non-W Less White
Year	White	Non-White	Black	Hisp	Total	White	Non-White	Black	Hisp	Total	White	Non-White	Black	Hisp	Total	White
1959					1455					665					45.7%	
1960	1565	114			1679	717	41			758	45.8%	36.0%			45.1	- 9.8%
1961	1612	151			1763	798	49			847	49.5	32.5			48.0	-17.0
1962	1660	178			1838	840	60			900	50.6	33.7			49.0	-16.9
1963	1615	126			1741	736	48			784	45.6	38.1			45.0	- 7.5
1964	1964	181			2145	967	70			1037	49.2	38.7			48.3	-10.5
1965	2417	242			2659	1249	105			1354	51.7	43.4			50.9	- 8.3
1966	2403	209			2612	1243	66			1309	51.7	31.6			50.1	-20.1
1967	2267	258			2525	1202	108			1311	53.0	41.9			51.9	-11.1
1968	2303	303			2606	1304	140			1444	56.6	46.2			55.4	-10.4
1969	2538	304			2842	1402	114			1516	55.2	37.5			53.3	-17.7
1970	2461	296			2757	1280	142			1422	52.0	48.0			51.6	- 4.0
1971	2596	276			2872	1402	130			1532	54.0	47.1			53.3	- 6.9
1972	2614	347			2961	1292	165			1457	49.4	47.6			49.2	- 1.8
1973	2707	352			3059	1302	123			1425	48.1	34.9			46.6	-13.2
1974	2736	367			3101	1288	187			1475	47.1	51.0			47.5	+ 3.9
1975	2825	366			3191	1446	167			1613	51.2	45.6			50.5	- 5.6
1976	2640	347	320	152	2987	1291	167	134	80	1458	48.9	48.1	41.9	52.6	48.9	- .3
1977	2768	372	335	156	3140	1403	187	166	80	1590	50.7	50.3	49.6	51.3	50.6	- .4
1978	2750	411	352	133	3161	1378	206	161	57	1584	50.1	50.1	45.7	42.9	50.1	0
1979	2776	384	324	154	3160	1376	183	147	69	1559	49.6	47.7	45.4	44.8	49.3	- 1.9
1980	2682	407	361	129	3089	1339	185	151	68	1524	49.9	45.5	41.8	52.7	49.3	- 4.4
1981	2626	427	359	146	3053	1434	212	154	76	1646	54.6	49.6	42.9	52.1	53.9	- 5.0
1982	2644	456	384	174	3100	1376	192	140	75	1568	52.0	42.1	36.5	43.1	50.6	- 9.9
1983	2496	468	392	138	2964	1372	190	151	75	1562	55.0	40.6	38.5	54.3	52.7	-14.4
1984	2514	498	438	185	3012	1455	207	176	82	1662	57.9	41.6	40.2	44.3	55.2	-16.3
1985	2241	425	333	141	2666	1332	207	141	72	1539	59.4	48.7	42.3	51.1	57.7	-10.7
1986	2307	479	386	169	2786	1292	207	141	75	1499	56.0	43.2	36.5	44.4	53.8	-12.8

Notes:

(1) Published and unpublished data supplied by Sharon Cohany, Economist, Bureau of Labor Statistics, Office of Employment and Unemployment Analysis, Washington, D.C., 202/523-1944. This information is collected each October as a special supplement to the Current Population Survey. The Survey is administered by the Bureau of the Census.

(2) Data includes civilian population only. Data reflect status of enrolled in college as of October of each year for individuals age 16 to 24 who graduated from high school during the previous twelve months. College means a degree granting higher educational institution, and does not include business, trade or other forms of vocational postsecondary education.

(3) Non-white includes "blacks and other" races. Since 1976 the ethnic category of Hispanic has been added. Hispanics may be of any race.

(4) Not enrolled in college includes those in the labor force (employed or seeking employment), keeping house, other types of postsecondary education other than college, disabilities, and discouraged workers.

Table A-3
College Enrollment Motivation for White College Freshmen

	1971	1976	1978	1980	1982	1984	'78-'84 Change
Sample Size (10%)	14,988	18,479	15,851	15,815	16,131	15,588	
I. Life goals and values (% essential + very important)							
A. Personal welfare.	55.4	56.1	57.6	56.9	58.8	58.8	1.2
1. Be very well off financially	36.0	47.9	54.1	57.3	62.2	64.1	10.0
2. Raise a family	60.0	56.3	61.3	61.9	66.1	67.2	5.9
3. Developing a meaningful philosophy of life	70.3	64.1	57.4	51.5	48.2	45.1	-12.3
B. Career objectives.	37.9	45.5	49.2	50.8	51.5	52.0	2.8
1. Becoming an authority in my field	58.7	68.9	71.4	71.0	71.1	70.2	-1.2
2. Obtaining recognition from my colleagues for contributions to my special field	36.7	44.5	49.4	53.0	53.7	53.8	4.4
3. Being successful in a business of my own	38.1	40.6	43.6	43.4	44.3	45.1	1.5
4. Having administrative responsibility for the work of others	17.9	28.0	32.5	35.6	36.8	38.7	6.2
C. Social contribution.			33.6	33.3	31.5	30.7	-2.9
1. Helping others who are in difficulty	62.4	61.5	63.8	62.0	58.9	58.6	-5.2
2. Keeping up to date with political affairs	46.8	43.1	41.4	45.2	43.4	42.7	1.3
3. Influencing social values	28.7	28.6	30.2	30.6	29.3	30.4	0.2
4. Helping to promote racial understanding			31.9	29.4	28.5	28.7	-3.2
5. Participating in a community action program	25.2	28.5	26.7	25.6	22.7	21.3	-5.4
6. Becoming involved in programs to clean up the environment	43.3	26.2	25.7	24.3	21.7	17.7	-8.0
7. Influencing the political structure	15.6	15.9	15.2	16.1	15.7	15.8	-0.6
D. Creative contribution.	13.5	13.4	14.3	13.3	13.1	12.0	-2.3
1. Making a theoretical contribution to science	9.8	14.3	15.2	14.6	14.2	13.2	-2.0
2. Creating artistic work (painting, sculpture, decorating, etc.)	16.5	13.7	14.1	13.1	12.4	10.8	-3.3
3. Writing original work (poems, novels, short stories, etc.)	14.7	13.6	14.1	12.8	13.0	12.3	-1.8
4. Becoming accomplished in one of the performing arts (acting, dancing, etc.)	13.1	11.9	13.6	12.7	12.8	11.5	-2.1
II. Reasons for attending college (% very important)							
A. Career.		52.3	57.5	59.1	61.1	59.9	2.4
1. To be able to get a better job		65.6	70.7	72.0	72.3	69.3	-1.4
2. To be able to make more money		47.0	55.2	57.8	63.7	61.4	6.2
3. To prepare myself for graduate or professional school		44.3	46.5	47.6	47.3	49.0	2.5
B. General education.		52.6	55.2	55.5	55.4	55.0	-0.2
1. To gain a general education and appreciation of ideas		66.9	70.6	68.5	69.6	66.9	-3.7
2. To improve my reading and study skills		31.9	35.4	36.2	37.0	37.6	2.2
3. To learn more about things that interest me		74.1	74.7	75.7	73.8	72.8	-1.9
4. To meet new and interesting people		57.3	60.2	60.8	60.4	61.7	1.5
5. to make me a more cultured person		33.0	35.2	36.2	36.2	35.9	0.7
C. Pushed/imposed motives.		10.8	9.9	11.1	12.1	11.6	1.7
1. My parents wanted me to go		27.4	27.4	30.1	31.8	29.0	1.6
2. I could not find a job		2.9	2.5	3.2	4.2	3.1	0.6
3. There was nothing better to do		2.1	1.4	1.4	1.7	1.6	0.2
4. I wanted to get away from home		10.7	8.3	9.8	10.8	12.6	4.3

	1971	1976	1978	1980	1982	1984	Change
III. Reasons for choosing particular college (% very important)							
A. College characteristics.	37.4	41.3	42.9	43.4	44.2	43.2	0.3
1. This college has a very good academic reputation	41.8	57.0	60.8	61.5	64.1	66.3	5.5
2. This college offers special educational programs	32.9	25.6	25.0	25.2	24.2	20.0	-5.0
B. Financial considerations.		10.7	10.8	11.2	12.3	15.6	4.8
1. I was offered financial assistance		15.3	15.2	16.8	17.7	20.0	4.8
2. This college has low tuition	12.3	10.8	11.4	10.8	13.0	14.2	2.8
3. I wanted to live at home	7.8	6.1	5.9	5.9	6.1	12.6	6.7
C. Advice.		5.1	5.0	5.0	5.0	4.7	-0.3
1. My relatives wanted me to come here	7.0	6.0	5.4	5.9	5.8	5.8	0.4
2. My teacher advised me		3.8	3.4	3.3	3.3	3.1	-0.3
3. My guidance counselor advised me	5.8	6.0	5.9	6.0	5.9	5.9	0
4. A friend suggested attending	15.5	6.1	5.9	5.4	6.0	5.8	-0.1
5. A college representative recruited me		3.5	4.2	4.6	4.2	2.7	-1.5
IV. Expectation (% changes very good)							
A. Academic success.		42.1	43.8	43.7	43.6	42.6	-1.2
1. Graduate with honors	5.3	11.8	12.1	12.5	12.7	12.7	0.6
2. Be elected to an academic honor society	3.9	8.4	9.1	9.8	8.0	8.8	-0.3
3. Make at least a "B" average	27.9	44.6	45.0	44.6	44.0	44.6	-0.4
4. Get a bachelors degree (B.A., B.S., etc.)		72.5	73.3	71.7	72.8	73.5	0.2
5. Be satisfied with your college	57.9	55.6	58.0	55.9	57.7	57.1	-0.9
6. Find a job after college in the field for which you were trained		59.5	65.1	67.5	66.4	58.7	-6.4
B. Academic difficulty.	2.7	2.5	3.0	2.9	2.8	3.0	0
1. Fail one or more courses	1.8	1.4	1.5	1.5	1.1	1.1	-0.4
2. Need extra time to complete your degree requirements	3.6	3.5	4.2	4.2	4.4	4.5	0.3
3. Get tutoring help in specific courses	5.6	5.5	7.4	7.4	6.8	7.8	0.4
4. Drop out of this college temporarily (excluding transferring)	1.8	1.5	1.1	1.0	0.9	0.9	-0.2
5. Drop out permanently (excluding transferring)	0.8	0.8	0.7	0.6	0.7	0.6	-0.1
C. Counseling support.	9.9	5.9	5.8	5.6	4.9	4.6	-1.2
1. Seek individual counseling on personal problems	6.9	3.8	3.9	4.0	3.1	3.2	-0.7
2. Seek vocational counsel	12.9	7.9	7.7	7.2	6.6	5.9	-1.8
D. Academic change.	14.2	12.5	12.9	12.6	12.2	12.7	-0.2
1. Change major field	15.7	13.8	14.7	14.5	14.7	15.5	0.8
2. Transfer to another college before graduating	10.6	10.1	9.0	8.4	7.5	7.1	-1.9
3. Change career choice	16.4	13.7	15.0	15.0	14.5	15.4	0.4
E. Extracurricular experience.		17.0	18.4	19.2	19.5	20.9	2.5
1. Be elected to student office	1.3	2.3	2.7	3.1	2.9	3.4	0.7
2. Live in coeducational dorm		29.0	31.7	33.1	35.6	38.7	7.0
3. Join a social fraternity, sorority, or club	16.4	19.8	20.7	21.3	20.0	20.7	0
F. Work during college.		30.0	30.4	29.7	28.4	27.1	-3.3
1. Get a job to help pay for college expenses		40.7	42.2	40.8	39.0	37.7	-4.5
2. Work full time while attending college	29.4	19.2	18.6	18.6	17.7	16.4	-2.2

Source: CIRP

Table A-4
College Enrollment Motivation for Black College Freshmen

	1971	1976	1978	1980	1982	1984	'78-'84 Change
Sample Size (50%)	6,538	9,219	8,671	8,273	7,581	6,532	
I. Life goals and values (% essential + very important)							
A. Personal welfare.	55.6	57.5	59.2	58.8	59.9	60.6	1.4
1. Be very well off financially	50.9	62.7	67.1	69.7	72.9	73.5	6.4
2. Raise a family	51.6	48.3	51.1	51.0	53.6	56.3	5.2
3. Developing a meaningful philosophy of life	64.2	61.6	59.5	55.6	53.2	52.1	-7.4
B. Career objectives.	48.0	53.6	56.7	56.9	56.8	56.7	0
1. Becoming an authority in my field	68.8	72.2	74.7	72.0	72.2	71.4	-3.3
2. Obtaining recognition from my colleagues for contributions to my special field	48.8	53.5	56.9	58.2	58.5	57.1	0.2
3. Being successful in a business of my own	47.3	51.2	54.7	55.0	55.2	55.4	0.7
4. Having administrative responsibility for the work of others	26.9	37.5	40.3	42.2	41.4	42.8	2.5
C. Social contribution.			43.5	43.6	42.4	41.8	-1.7
1. Helping others who are in difficulty	66.9	69.0	70.2	67.4	67.2	67.0	-3.2
2. Keeping up to date with political affairs	40.3	37.1	40.2	41.7	43.9	43.8	3.6
3. Influencing social values	37.1	36.9	38.5	39.1	38.2	38.3	-0.2
4. Helping to promote racial understanding			65.0	65.1	65.7	64.4	-0.6
5. Participating in a community action program	38.3	39.4	38.6	39.0	34.0	32.8	-5.8
6. Becoming involved in programs to clean up the environment	36.0	28.9	30.2	30.1	26.1	25.2	-5.0
7. Influencing the political structure	20.8	21.3	21.5	22.9	21.7	21.4	-2.6
D. Creative contribution.	12.8	15.8	16.6	16.5	14.8	14.0	-2.6
1. Making a theoretical contribution to science	10.5	18.7	19.0	19.4	19.3	18.0	-1.0
2. Creating artistic work (painting, sculpture, decorating, etc.)	12.1	14.5	15.3	14.7	12.3	11.5	-3.8
3. Writing original work (poems, novels, short stories, etc.)	13.9	15.4	16.3	16.2	14.6	13.5	-2.8
4. Becoming accomplished in one of the performing arts (acting, dancing, etc.)	14.5	14.6	15.7	15.7	12.8	13.1	-2.6
II. Reasons for attending college (% very important)							
A. Career.		68.6	72.1	71.5	72.5	70.2	-1.9
1. To be able to get a better job		75.7	79.7	78.4	77.0	74.6	-5.1
2. To be able to make more money		66.1	68.9	69.4	73.0	69.8	0.9
3. To prepare myself for graduate or professional school		63.9	67.7	66.8	67.6	66.2	-1.5
B. General education.		62.8	65.2	64.3	64.5	62.8	-2.4
1. To gain a general education and appreciation of ideas		74.3	79.0	76.3	77.4	75.1	-3.9
2. To improve my reading and study skills		55.5	60.3	61.0	60.6	59.2	-1.1
3. To learn more about things that interest me		77.6	79.2	78.0	78.1	76.1	-3.1
4. To meet new and interesting people		55.8	56.7	56.6	56.8	55.7	-1.0
5. To make me a more cultured person		50.7	50.9	49.5	49.5	47.7	-3.2
C. Pushed/imposed motives.		17.3	16.4	17.7	19.4	17.6	1.2
1. My parents wanted me to go		41.3	41.1	44.3	44.9	40.7	-0.4
2. I could not find a job		11.4	10.5	10.1	12.8	8.5	-2.0
3. There was nothing better to do		4.5	3.9	3.8	4.2	3.3	-0.6
4. I wanted to get away from home		12.0	10.2	12.6	15.6	17.7	7.5

	1971	1976	1978	1980	1982	1984	'78-'84 Change
III. Reasons for choosing particular college (% very important)							
A. College characteristics.	37.9	42.9	46.2	47.0	49.5	49.9	3.7
1. This college has a very good academic reputation	41.8	54.6	58.8	58.1	64.7	66.1	7.3
2. This college offers special educational programs	33.9	31.1	33.5	35.8	34.2	33.7	0.2
B. Financial considerations.		16.0	16.2	17.0	17.5	22.9	6.7
1. I was offered financial assistance		28.2	28.5	30.9	31.0	35.5	7.0
2. This college has low tuition	12.3	13.0	13.6	13.4	15.1	19.0	5.4
3. I wanted to live at home	7.8	6.9	6.4	6.8	6.4	14.3	7.9
C. Advice.		8.5	8.5	9.1	8.7	8.1	-0.4
1. My relatives wanted me to come here	10.9	9.4	8.7	9.2	9.5	9.8	1.2
2. My teacher advised me		6.9	6.5	7.3	6.8	6.3	-0.2
3. My guidance counselor advised me	5.8	10.2	10.2	11.5	10.0	10.6	0.4
4. A friend suggested attending	15.5	7.1	6.8	7.0	6.8	6.4	-0.4
5. A college representative recruited me		8.7	10.1	10.5	10.2	7.2	-2.9
IV. Expectation (% changes very good)							
A. Academic success.		36.8	39.4	39.1	41.4	41.0	1.6
1. Graduate with honors	7.3	15.2	16.1	16.7	17.5	16.3	0.2
2. Be elected to an academic honor society	4.3	9.1	10.2	11.1	11.1	10.9	0.7
3. Make at least a "B" average	18.3	31.3	34.4	35.8	38.4	37.7	3.3
4. Get a bachelors degree (B.A., B.S., etc.)		62.6	65.8	63.5	68.4	68.9	3.1
5. Be satisfied with your college	52.5	47.2	49.0	46.6	50.0	48.3	-0.7
6. Find a job after college in the field for which you were trained		55.5	61.0	60.9	63.1	63.7	2.7
B. Academic difficulty.	5.7	6.8	6.8	7.0	6.5	6.9	0.1
1. Fail one or more courses	2.6	2.8	2.3	2.0	1.8	1.7	-0.6
2. Need extra time to complete your degree requirements	5.6	6.6	7.0	7.4	7.0	7.2	0.2
3. Get tutoring help in specific courses	18.6	21.3	22.3	22.5	21.1	22.7	0.4
4. Drop out of this college temporarily (excluding transferring)	1.2	1.7	1.4	1.7	1.5	1.5	0.1
5. Drop out permanently (excluding transferring)	0.7	1.4	1.2	1.5	1.2	1.3	0.1
C. Counseling support.	12.6	8.9	9.4	9.3	7.9	7.2	-2.2
1. Seek individual counseling on personal problems	11.3	9.3	10.1	9.9	8.2	7.3	-2.8
2. Seek vocational counsel	13.9	8.5	8.6	8.6	7.6	7.1	-1.5
D. Academic change.	9.4	8.2	8.5	8.8	8.5	9.0	0.5
1. Change major field	11.3	9.1	9.7	9.6	9.8	10.9	1.2
2. Transfer to another college before graduating	7.3	8.0	8.3	8.8	8.0	7.9	-0.4
3. Change career choice	9.6	7.6	7.6	8.1	7.6	8.3	0.7
E. Extracurricular experience		13.3	14.9	15.5	16.0	17.9	3.0
1. Be elected to student office	3.4	5.5	6.0	7.1	6.6	7.2	1.2
2. Live in coeducational dorm		17.8	20.9	20.9	23.2	26.8	5.9
3. Join a social fraternity, sorority, or club	17.1	16.5	17.8	18.4	18.2	19.6	1.8
F. Work during college.		19.4	21.4	21.2	21.2	22.1	-0.7
1. Get a job to help pay for college expenses		24.1	28.1	27.9	28.0	30.6	2.5
2. Work full time while attending college	24.7	14.7	14.7	14.4	14.4	13.6	-1.1

Source: CIRP

TABLE A-5

MEDIAN INCOME FOR MALES WITH FOUR OR MORE YEARS OF COLLEGE BY RACE, 1967-1986

	Total						Year-round, Full-time						Labor Forc Efficiency	
	White		Black		Differnce	Black %	White		Black		Differnce	Black %		
Year	Current$	Constant$	Current$	Constant$	Constant$	of White	Current$	Constant$	Current$	Constant$	Constant$	of White	White	Black
1986	$34,046	$34,046	$24,747	$24,747	-$9,299	72.7%	$37,196	$37,196	$29,039	$29,039	-$8,157	78.1%	91.5%	85.2%
1985	$32,588	$33,219	$25,108	$25,594	-$7,625	77.0%	$36,110	$36,809	$27,853	$28,392	-$8,417	77.1%	90.2%	90.1%
1984	$30,779	$32,502	$21,908	$23,134	-$9,368	71.2%	$34,403	$36,328	$28,244	$29,825	-$6,503	82.1%	89.5%	77.6%
1983	$28,560	$31,419	$21,357	$23,495	-$7,924	74.8%	$32,137	$35,354	$26,606	$29,270	-$6,084	82.8%	88.9%	80.3%
1982	$26,946	$30,620	$18,908	$21,486	-$9,134	70.2%	$30,521	$34,683	$21,520	$24,455	-$10,228	70.5%	88.3%	87.9%
1981	$25,865	$31,200	$18,935	$22,841	-$8,359	73.2%	$28,648	$34,557	$21,424	$25,843	-$8,714	74.8%	90.3%	88.4%
1980	$23,556	$31,324	$16,811	$22,355	-$8,969	71.4%	$26,139	$34,759	$20,335	$27,041	-$7,718	77.8%	90.1%	82.7%
1979	$20,969	$31,675	$16,582	$25,048	-$6,627	79.1%	$23,803	$35,956	$19,598	$29,604	-$6,352	82.3%	88.1%	84.6%
1978	$19,328	$32,484	$15,644	$26,292	-$6,192	80.9%	$21,900	$36,807	$17,702	$29,751	-$7,056	80.8%	88.3%	88.4%
1977	$17,887	$32,345	$13,220	$23,906	-$8,439	73.9%	$20,510	$37,089	$15,535	$28,092	-$8,997	75.7%	87.2%	85.1%
1976	$16,688	$32,154	$12,619	$24,314	-$7,840	75.6%	$19,171	$36,938	$15,211	$29,308	-$7,630	79.3%	87.0%	83.0%
1975	$15,949	$32,483	$11,787	$24,006	-$8,477	73.9%	$18,321	$37,314	$13,418	$27,328	-$9,986	73.2%	87.1%	87.8%
1974	$15,419	$34,264	$10,954	$24,342	-$9,922	71.0%								
1973	$14,908	$36,810	$11,294	$27,886	-$8,924	75.8%								
1972	$14,385	$37,657	$10,654	$27,890	-$9,767	74.1%								
1971	$13,305	$36,057	$10,448	$28,314	-$7,743	78.5%								
1970	$12,840	$36,271	$9,290	$26,243	-$10,028	72.4%								
1969	$12,437	$37,237	$8,567	$25,650	-$11,587	68.9%								
1968	$11,425	$36,041	$7,615	$24,022	-$12,019	66.7%								
1967	$10,740	$35,213	$7,246	$23,757	-$11,456	67.5%								

Source: Census Bureau, Current Population Reports, Consumer Income, Series P-60, for years shown.

Note: Data 1967 to 1974 and 1980 to 1986 is for males age 25 and over. Data 1975 to 1979 is for males age 18 and over.

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TABLE A-6
MEDIAN INCOME FOR FEMALES WITH FOUR OR MORE YEARS OF COLLEGE
BY RACE, 1967-1986

	Total						Year-round, Full-time						Labor Force Efficiency		
	White		Black		Differnce	Black %	White		Black		Differnce	Black %			
YEAR	Current$	Constant$	Current$	Constant$	Constant$	of White	Current$	Constant$	Current$	Constant$	Constant$	of White	White	Black	Diff
1986	$17,686	$17,686	$20,711	$20,711	$3,025	117.1%	$24,525	$24,525	$23,431	$23,431	-$1,094	95.5%	72.1%	88.4%	16.3%
1985	$17,032	$17,362	$19,133	$19,504	$2,142	112.3%	$23,517	$23,972	$20,832	$21,235	-$2,737	88.6%	72.4%	91.8%	19.4%
1984	$15,657	$16,533	$18,401	$19,431	$2,898	117.5%	$22,089	$23,325	$21,222	$22,410	-$915	96.1%	70.9%	86.7%	15.8%
1983	$14,432	$15,877	$16,485	$18,135	$2,258	114.2%	$20,382	$22,422	$18,848	$20,735	-$1,687	92.5%	70.8%	87.5%	16.7%
1982	$13,262	$15,070	$15,337	$17,428	$2,358	115.6%	$19,586	$22,257	$17,240	$19,591	-$2,666	88.0%	67.7%	89.0%	21.3%
1981	$11,947	$14,411	$13,963	$16,843	$2,432	116.9%	$18,085	$21,815	$16,069	$19,384	-$2,431	88.9%	66.1%	86.9%	20.8%
1980	$10,813	$14,379	$13,767	$18,307	$3,928	127.3%	$16,441	$21,863	$16,082	$21,386	-$477	97.8%	65.8%	85.6%	19.8%
1979	$9,130	$13,792	$11,940	$18,036	$4,244	130.8%	$14,319	$21,630	$15,088	$22,792	$1,162	105.4%	63.8%	79.1%	15.3%
1978	$8,662	$14,558	$10,275	$17,269	$2,711	118.6%	$12,984	$21,822	$12,113	$20,358	-$1,464	93.3%	66.7%	84.8%	18.1%
1977	$8,394	$15,179	$10,980	$19,855	$4,676	130.8%	$12,251	$22,154	$12,612	$22,807	$653	102.9%	68.5%	87.1%	18.6%
1976	$7,834	$15,094	$9,695	$18,680	$3,586	123.8%	$11,685	$22,514	$12,057	$23,231	$717	103.2%	67.0%	80.4%	13.4%
1975	$7,530	$15,336	$9,224	$18,786	$3,450	122.5%	$11,067	$22,540	$10,158	$20,688	-$1,852	91.8%	68.0%	90.8%	22.8%
1974	$7,176	$15,947	$8,957	$19,904	$3,957	124.8%									
1973	$6,908	$17,057	$7,987	$19,721	$2,664	115.6%									
1972	$6,632	$17,361	$7,978	$20,885	$3,524	120.3%									
1971	$6,482	$17,566	$7,805	$21,152	$3,586	120.4%									
1970	$5,995	$16,935	$7,744	$21,876	$4,941	129.2%									
1969	$5,707	$17,087	$6,747	$20,201	$3,114	118.2%									
1968	$5,198	$16,397	$6,715	$21,183	$4,786	129.2%									
1967	$5,126	$16,807	$5,823	$19,092	$2,285	113.6%									

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Source: Census Bureau, Current Population Reports, Consumer Income,
Series P-60, for years shown.
Note: Data 1967 to 1974 and 1980 to 1986 is for females age 25 and over.
Data 1975 to 1979 is for females age 18 and over.

THE RELATIONSHIP OF FINANCIAL AID TO STUDENT PERSISTENCE IN A COMMUTER INSTITUTION: A TEST OF A CAUSAL MODEL*

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THE RELATIONSHIP OF FINANCIAL AID TO STUDENT PERSISTENCE IN A COMMUTER INSTITUTION: A TEST OF A CAUSAL MODEL

Abstract

The purposes of this study were to examine the role of financial aid on student persistence using path analysis, and to develop and test a causal model that places emphasis on academic types of variables, for a commuter institution. Tinto's model of student attrition was used as a framework, however, the model in this study included only academic types of variables. The model included two financial aid variables: the total amount of aid awarded, and the percentage of the aid package awarded in the form of loans. Persistence was measured by credits completed over a two year period. The subjects were 227 freshmen financial aid recipients, who enrolled Fall Quarter 1982 in the College of Liberal Arts at the University of Minnesota. The subjects were all new freshmen who enrolled directly from high school, and were dependent on parental support as defined by financial aid guidelines. The model accounted for 35% of the variance in persistence. The financial aid variables had no significant effect on persistence or grade-point average. The model was cross-validated on a second data set and the model was supported. This study used existing institutional data which means the study can be replicated at other commuter institutions.

THE RELATIONSHIP OF FINANCIAL AID TO STUDENT PERSISTENCE IN A COMMUTER INSTITUTION: A TEST OF A CAUSAL MODEL

In these times of declining enrollments and greater economic costs for institutions, it has become important for institutions to get a better understanding of the phenomena of student attrition. When students begin a course of study and then do not continue their education, there are considerable costs and many implications for an institution. Institutions are becoming increasingly aware of the desirability of retaining students already enrolled by maximizing student persistence.

Many descriptive and atheoretical studies of attrition have been done. Excellent reviews of attrition literature have been written by Summerskill (1962), Tinto (1975), and Pantages and Creedon (1978). Since 1970, researchers have been more aware of the need to look at the broader phenomena of attrition, and began to develop models of student attrition (Spady, 1970; Tinto, 1975; Pascarella, 1980). Tinto's 1975 model is the predominant attrition model, and numerous research studies since then have studied either parts or all of the model in attempts to validate it in different settings. Along with the shift in interest to theoretical models came a methodological change from the earlier descriptive and correlational studies to an increased interest in multivariate studies, particularly causal modeling.

In spite of the interest in theoretical models of student attrition, very few studies have included financial aid variables in the model. Since it is estimated that over half of all students enrolled in postsecondary institutions receive some financial aid, and financial aid money has come to play an important role in the economic well-being of institutions, financial aid has come to play an important role in the academic environment. It therefore has become important to study and understand the relationships between financial aid variables and student persistence.

Student financial aid awards were originally intended to reduce the costs of attendance for certain populations and therefore increase student access. Later, financial aid was seen as a way of providing students a choice of the institution they could attend. Research in financial aid is typically targeted to these two issues. The additional question of how financial aid relates to persistence once the student has enrolled in a higher education institution, has been less frequently studied.

Financial aid variables include both the quantity and quality of the aid awarded; the total amount of aid awarded and the types of aid awarded are both important to the study of financial aid. Financial aid is awarded in an aid package that may combine funding from three types of aid: grants, loans, and work-study. Grant aid is nonrepayable "gift assistance" and from the student's perspective is the most desirable type of aid. Loan aid must be repaid with some interest, although usually at a below market interest rate and usually after a student leaves school. Loan aid is considered to be "self-help assistance". Work-Study aid is allocated through a federal and/or state program which pays a portion of the wages for part-time student employment, and is also considered "self-help assistance". Further discussion of financial aid research and literature can be found in a forthcoming article (Moline, in press).

A shortcoming of attrition research has been that relatively few studies of persistence have been conducted in non-residential (commuter) institutions. Tinto's model was developed and has been frequently validated in residential institutions. One reason for this may have been that Tinto's model is a longitudinal process model that involves complex associations and interactions between the student and the academic and social systems of the institution. In order to get information on academic and social integration, most studies have relied heavily on student survey information. Student survey information is more easily obtained on a residential campus than on a non-residential campus, where even getting a current address list is sometimes a challenge.

Recent studies have shown that institutional characteristics (such as residential or commuter institution, 2-year or 4-year institution) may have important influences on the model of student attrition (Pascarella and Chapman, 1983), and that the model for students in commuter institutions may differ from that found in residential institutions (Pascarella, Duby, and Iverson, 1983). Pascarella and Chapman (1983) found that in commuter institutions, social integration had no effect, direct or indirect, on persistence. Tinto's complete model may not be generalizable to non-residential institutions where there are fewer opportunities for social integration. It seems appropriate to reconceptualize Tinto's model with more emphasis on academic integration for the study of persistence in commuter institutions. When the model emphasizes academic variables, it then also becomes possible to use existing data from institutional data bases for study of the model. This means the data are verifiable, and that the study can be replicated in other institutions.

The Study Model

The causal model used in this study was developed out of the more generalized persistence models and was adapted to place more emphasis on academic types of variables. The model includes financial aid variables as a part of the academic environment and therefore is also consistent with Bean (1980) and Voorhees (1985) who posit college environmental variables as important to persistence.

The model used in this study hypothesizes that persistence for the traditional freshmen at a large commuter institution is based on background prematriculation characteristics, and mediating variables of the academic environment such as financial aid and college grade-point average (GPA). It was also hypothesized that background variables would have important direct and indirect effects in this commuter institution study.

The primary purposes of this study were: (1) to study the role of financial aid on student persistence using causal modeling; and (2) to develop and test a causal model of student persistence that places emphasis on academic types of variables, for a commuter institution.

Method

Design and Data

The general design of this study was longitudinal. Persistence, the dependent variable, was indicated by the number of credits completed during the total time period covered by the 1982-1983 academic year, the two summer sessions in 1983, and the 1983-1984 academic year. Independent variables consisted of the student's prematriculation background characteristics, financial aid variables, and cumulative college GPAs.

The empirical basis for this study was a data base created specifically for this research project by the merging of three existing institutional data bases. The data elements came from three data bases of the University of Minnesota and the state:

1. The University Student Data Base
2. The Comprehensive Financial Aid Report for all applicants to the State Scholarship and Grant program.
3. The University Financial Aid Office Year End Report.

The unique features of this data base are the inclusion of family financial information (on both income and assets), and the actual dollar amount awarded to students in the various forms of financial aid. Since the financial aid data were based on the awards made for the first year of college, the study reflects the effect of financial aid awarded in the first year on persistence through the first two years.

This study relies on existing, verifiable institutional data. Most attrition studies rely heavily on student survey information which a participating student chooses to volunteer. This study also represents an attempt to make better use of existing institutional data, and to conduct a study that can be replicated in other institutions.

Study Population

The total study population included 452 freshmen who enrolled in Fall Quarter 1982 in the College of Liberal Arts (CLA) at the University of Minnesota. The university is a large, urban, doctoral granting, commuter institution in the upper Midwest. The College of Liberal Arts is a selective college with specific entrance requirements. It is the largest of the 23 colleges at the university, and approximately 6,400 freshmen enrolled in Fall Quarter 1982.

The University of Minnesota is different from most commuter institutions because it is the major public university in the state and also because it is located in a large metropolitan area. About 10% of the students live in university dormitories and approximately 77% of the students reside within 10 miles of the campus.

The population of 452 financial aid recipients who met the criteria of the study were randomly divided to provide a study group and a validation group. The study group consisted of 227 students, and the validation group of 225 was used to cross-validate the model.

The group of traditional new freshmen students selected for the study included financial aid recipients who had initially enrolled full-time, directly from high school. Full-time is defined as registration for 12 credits or more for Fall Quarter 1982. Additional criteria were that the subjects be Minnesota residents, be between the ages of 16 and 20, and be classified as "dependent" students (dependent on parental support as defined by financial aid guidelines). A homogeneous group was selected to increase the accuracy of the description of persistence for this traditional new freshmen group. Although this does limit the generalizability of the results, it provides a more precise picture of the factors affecting persistence for this population.

Males constituted 42% of the subjects, and females 58%. Minority group members constituted 5.6% of the population. The mean PSAT verbal plus math score for students in the study was 96.8. The study population appears to be similar to the freshman class of the College of Liberal Arts on these variables.

Measurement of the Variables

There are three types of independent variables in the model: background variables that reflect the student's prematriculation characteristics, the mediating financial aid variables from the academic environment, and college GPA. The choice of variables included in the model reflects the influence of both past empirical research and theory on persistence, and the way in which financial aid is awarded.

Most students use the PSAT as the measure of tested ability, for admission to the university. Some students, however, had used the ACT for admission purposes and had not taken the PSAT (9%). A transformation was necessary in order to get comparable measures of tested ability for all students. This study included an equipercentile transformation based on 654 College of Liberal Arts freshmen from Fall 1982 (the same cohort group as the study population), for whom both ACT and PSAT scores were available. The transformation results fell midway between the transformations done by the University of Minnesota for freshmen entering Fall 1977 and Fall 1984, and appear reasonable and accurate.

The financial aid variables used in this study were (1) total aid awarded, and (2) the percentage of the aid package awarded in the form of loans. The total aid awarded reflects primarily need-based aid, but also includes some non-need based awards such as scholarships for academic excellence, and grants for service or group affiliation.

The model for this study was originally designed to include variables relating to several different forms of financial aid. After the data were examined, the work-study variable was dropped from the model because only 17 of the 227 students in the study group (8%) were awarded work-study aid at this institution. Additionally, further examination of the data also showed that of the 227 students in the study group, 207 (91%) had been awarded financial aid in the form of grants, and 135 (60%) had been awarded aid in the form of loans.

Because of the high multicollinearity between grants and loans (r = -.98) they could not be combined in the same analysis. A study similar to this one, which included financial aid in the form of grants, was completed previously (Moline, in press).

In this study, persistence was measured by the continuous variable of credits completed. This criterion differs from that used in most persistence research. Most persistence studies have used a dichotomous variable as the persistence measure, for example scoring dropouts as 0 and persisters as 1, or have used semesters completed as their criterion. The use of a continuous variable in this study allows more precision of measurement than a dichotomous variable, and is more appropriate when multiple regression is to be used as a methodology. Note that the persistence criterion of credits completed does have a relationship to the credit load carried by the student.

Persistence is defined as the total number of credits the student completed during the time he or she attended the University of Minnesota, within the two year time frame of this study. Although the student initially must have attended the College of Liberal Arts to have been included in this study, the credits completed subsequently may have been taken through any other college within the university. This variable reflects persistence at the larger university and not just in the College of Liberal Arts.

The registration patterns of the students in the study were examined over the two academic years. During that time, 25% of the students dropped out, 3% stopped out (dropped out and then returned), and 72% had continuously registered for the six quarters.

The following are operational definitions of the variables in the persistence model:

1. Adjusted available income (Adj income). A broad index, which is a net picture of the economic strength of the student's family. It is the result of a combination of income and assets, and takes into account family circumstances such as number of children and age of older parent.

2. High school rank (HSR). The percentile rank of the student's grade-point average in relation to his or her high school classmates. Rank was calculated at the end of the student's junior year in high school.

3. Preliminary Scholastic Aptitude Test (PSAT). This test is an indicator of a student's ability level. The Verbal and Mathematics scores were added together to form a single index. The test was administered in the student's junior year in high school.

4. Sex. Sex of the student coded (0) male, (1) female.

5. Major chosen. Whether the student had chosen a major at the time of his or her application to attend the College of Liberal Arts. Dummy coded: (0) Undecided, (1) Major chosen.

6. Home proximity. Whether the county which the student listed as his or her home is in the seven-county metropolitan area surrounding the university or in some other outstate county. Dummy coded: (0) Metropolitan, (1) Outstate.

7. Total aid awarded (Total aid). The total dollar amount in all forms of financial aid awarded to the student for the

freshman year including grants, loans, and work-study aid.

8. Percentage of package loans (% Pkg loans). The percentage of the student's total financial aid package that was awarded in the form of loans for the freshman year.

9. Grade-point average (GPA). The cumulative grade-point average as of the last quarter of the student's attendance at the university.

10. Credits completed. The number of credits a student has completed in any college within the university. A measure of the student's continued persistence to complete credits and of his continued effort to benefit from attendance at the university.

Statistical Analysis

This study uses multiple regression to estimate a path analytic model. Path analysis, a type of causal modeling, was chosen as a methodology because of indications found in prior research that interrelationships among the variables relating to persistence are important to the understanding of the process. Path analysis allows the simultaneous analysis of many variables and also allows the decomposition of effects into direct and indirect effects, which help to describe and explain the total system of linkages between the variables.

Path analysis is a heuristic device which necessitates the specification of a causal model of a priori relationships among the variables. Path analysis is a method of using correlational data to examine the plausibility of hypotheses about causal relationships among variables in a theory. It is a method of comparing the hypothesized patterns of direct and indirect relationships among variables with observed data to see how close the fit is between the model and the data. Theory specifies the ordering of the variables, and the model parameters are estimated through the use of least squares multiple regression.

Listwise deletion was used for missing data in the regressions. Students with missing information on any variable were excluded from the study. Twenty-two (less than 5%) of the students in the original population of 474 were excluded. When hypothesis testing is done, consistency is important, and the use of listwise deletion means that the same cases are used to estimate all the coefficients.

Results and Discussion

The descriptive statistics from the independent and dependent variables in the model are shown in Table 1. The table summarizes information on the range, mean, and standard deviation of all the variables. Although the maximum adjusted available income of the student's family is high ($124,000), that amount is a reflection of the fact that the population includes students who received non-need-based aid such as academic scholarships, service grants, and student loans.

Insert Table 1 about here

The correlation coefficients among the variables in the

90

model are presented in Table 2. An examination of the intercorrelations indicates that the highest bivariate correlation is .54, suggesting that multicollinearity among the variables in the model is not a major problem.

Insert Table 2 about here

Since path analysis assumes additive, not multiplicative relationships, and some persistence studies have found an interaction effect based on the sex of the student (e.g., Bean 1980), a test for interaction effects was done to determine if separate models for males and females were necessary. A significance test of the F ratio was done by testing the increase in R^2 between a model with direct effects and a model which included all the interaction effects of sex. The difference in R^2 between the models was not significant and therefore only one model was examined.

The standardized regression coefficients used to interpret the model are reported in Table 3. Standardized regression coefficients should be used for interpretation when the independent variables are measured in different metrics and when the main interest is in making comparisons of the coefficients across the variables within the same model and population. In this paper, the value shown in parentheses after a variable name is the standardized regression coefficient.

Insert Table 3 about here

Path Analysis

The R^2 for the model that explains the persistence criterion was .35 and indicates that 35% of the variance in persistence was accounted for by the nine variables in the model. The "adjusted R^2", a more conservative estimate of the variance accounted for in the model, is the R^2 adjusted for degrees of freedom. The "adjusted R^2" for the model was .32. The R^2 for the eight variables in the model that explain GPA, was .32, and the "adjusted R^2" was .30.

The original causal model was reduced to include only the 8 paths found significant at the .05 level. The statistically significant regression coefficients are represented by paths in the reduced path model in Figure 1.

Insert Figure 1 about here

Direct Effects

Two variables had statistically significant direct effects on persistence. These were GPA (.50) and high school rank (.16). GPA was found to have the largest statistically significant relationship of all the variables that were regressed on persistence; over three times larger than the second most significant variable.

The persistence criterion of credits completed used in this study is related to the credit load carried by the student. Students who have higher GPAs may have more academic ability or work harder and therefore may be able to carry heavier credit loads. The effect of GPA on persistence has often been theorized, and has also been substantiated in research studies that use other criteria of persistence (Voorhees, 1985).

The results of this study indicate that the financial aid variables (total amount of aid awarded and the percentage of the aid package awarded in the form of loans) used in this model, were not statistically significant in explaining either persistence or GPA. Since the population used in this research was made up only of those students who were awarded financial aid, the question was not whether financial aid had an effect on persistence, but rather did the amount or type of aid have an effect on persistence.

This study also provided some information about the relationship between family income and persistence for students who received financial aid. Students frequently cite financial problems as their reason for leaving school, however, that might be the most socially acceptable response that students can give for withdrawing. In this study, although the expected relationship between economic status and financial aid is present (the higher the parental income and assets the lower the total amount of aid), there is no significant relationship between adjusted income and either GPA or the persistence criterion. One interpretation of this might be that the financial aid policies for distribution of aid at the University of Minnesota do in fact ameliorate the differences in parental economic status between students. Another interpretation may be that at a public institution, the relatively low cost of attendance for state residents comes within the financial resources that are available to most students.

There was also no significant effect of home proximity on persistence. The variable was included because some previous studies have shown distance from home to be related to persistence (Ramist, 1981).

Two variables that were statistically significant in explaining GPA, were PSAT (.41) and high school rank (.26). The student who had a high GPA in college was one who had a high PSAT and high school rank before he or she came to the university.

Two statistically significant relationships were found when the two financial aid variables were regressed on the six background characteristics. The two variables statistically significant in explaining total aid were adjusted income (-.26) and home proximity (.23). This interesting finding indicated that students who received larger total dollar amounts of aid were more likely to have come from families with lower adjusted incomes, and their home residence was outside the seven-county metropolitan area. The costs of attendance at the university are greater for those students whose home residence is in an outstate area than it is for metropolitan students who may choose to live at home. Outstate students may need larger aid packages, which include more loans and/or work-study, in order for them to come to the university.

The two statistically significant variables that explain the percentage of the package awarded in the form of loans were adjusted income (.21), and PSAT (-.17). The student who had a larger percentage of his/her aid package awarded in the form of loans came from a family with a higher adjusted income, and had a lower PSAT score. Students whose parents have higher adjusted incomes would qualify for less need-based grant aid, and students with lower PSAT scores would be less likely to get merit grants: both might need to supplement their aid package with loans.

The sex of the student and whether a college major had been chosen at the time of application had no significant direct effect on the financial aid variables, GPA, or persistence.

Indirect Effects

Significant paths with indirect effects were identified through Duncan's (1966) rules for tracing paths. The indirect effects represent the influences of each causal variable on the dependent variable that are mediated through other variables.

There were only two indirect effects of persistence, and both were mediated through GPA. The largest indirect effect was found between PSAT and persistence (.21). It should be noted that even though PSAT had a large indirect effect on persistence, there was no significant direct effect. The second indirect effect was between high school rank and persistence (.13).

Total Effects

The total effect is perhaps the best indicator of the importance on a variable in explaining the dependent variable.

The total effect of a variable is the sum of its direct effect and indirect effects. In this study, the most important total effect on persistence was from GPA. The total effect of GPA (.50) was entirely a direct effect. Another important variable in the explanation of persistence was high school rank. The total effect of high school rank was .29, of which .16 was a direct effect and .13 an indirect effect.

The two largest total effects on GPA were PSAT (.41), and high school rank (.26). These effects were entirely direct effects.

Validation

A cross-validation of the model was done by applying the path model to the second data set. The model was tested on the data from the randomly determined second half of the total population. This validation group was composed of 225 students. The R^2 for the model on the validation group was .28. This is comparable to the earlier reported R^2 of .35 that was obtained for the model on the study group.

Confidence intervals, based on the Bonferroni Inequality (Weisberg, 1980), and using unstandardized regression coefficients, were computed for the 29 regressions on the validation group in order to compare the validation group and the study group. When parameters in one population are considered in comparison to another population, unstandardized regression coefficients must be used. All of the regression coefficients of the study group fell within the 95% Bonferroni confidence intervals constructed on the validation group. This cross-validation supports the model, and provides increased confidence that the hypothesized model is an accurate representation of the underlying processes involved.

Additional Analysis

The financial aid awarded to students in the total aid variable included primarily need-based aid; however, some non-need-based aid was also included in the awards. A criticism of the results of this study might be made on the basis that the financial aid population was composed of students who had varying levels of need, and that perhaps the effects of aid were changed because of the presence of the low-need students. For that reason, the population was divided into groups of high- and low-need, and the parameters fcr each group were estimated separately. The analysis indicated that the results were essentially the same and supported the results of the initial study.

Summary

Conclusions

1. In this study, the financial aid variables showed no significant relationship to persistence. Neither the total amount of aid awarded or the percentage of the aid package awarded in the form of loans had an effect on persistence or GPA.

2. The results of this study point out the importance of academic ability measures on persistence. Tested ability and performance in both high school and college have significant

effects on persistence. Because the information is so readily available, routinely collected, and relatively inexpensive, its importance may be easily overlooked.

3. In a commuter institution, the model which emphasized academic types of variables, accounted for 35% of the variance in persistence. The amount of variance explained by the model compares favorably with the results of other studies conducted in residential institutions that had included both academic and social integration variables.

4. Background characteristics are important and have both direct and indirect effects on persistence.

5. Students who come from families with higher adjusted available incomes and lower PSAT scores are more likely to have a higher percentage of loans in their aid package.

6. The adjusted income of the students' parents did not have a significant effect on persistence or GPA in this study. This is of interest since students frequently cite financial reasons for leaving school.

7. Students who come from home counties that are outside of the seven-county metropolitan area have larger total aid packages.

Limitations

This study has several limitations, the most obvious is that it is a single institution study. Attrition studies may yield different results depending on the type of institution from which the subjects are drawn. This study would be most useful to other institutions which are large, public, urban, commuter institutions, similar to the University of Minnesota.

This study did not attempt to answer the broader question relating to the effect of financial aid on persistence; that would have required a comparison with a non-aided population. This research studied the narrower question of whether differences in amounts or type of aid had an effect on persistence.

The persistence criterion used in this study was different from that used in most attrition research; it did not use the classic concepts of "dropouts", "stopouts", and "continuously registered". The persistence criterion of credits completed had the advantage of being a continuous variable, and was also an attempt to provide a new criterion of persistence. A limitation of the criterion is that it doesn't differentiate between the many types of students who have different attendance patterns.

The causal modeling approach itself has some limitations in interpretation. The results of a path analysis do not allow one to say this causal model is the model of student persistence. One can only, at best, say that it is a plausible model insofar as it fits the data. Alternative models may also be consistent with the data.

Recommendations for Further Research

1. This study points out the importance of using both high school rank and test scores in attrition models. While there was not a significant direct effect of PSAT on persistence, there was a significant indirect effect. The

relationships between ability and persistence would not have been evident if they had not both been included separately in the model. In an additional analysis conducted by the author but not reported on in this paper, where the models of persistence were examined separately for high and low-need students, the results indicated that the relative importance of high school rank or PSAT may depend on the economic status of the population under study. High school rank was a better predictor of GPA for low-need students, and PSAT for high-need students. This effect needs replication.

2. This study included the development of an equipercentile transformation. The transformation converted the test scores of students who had used the ACT for admission purposes (9%), into PSAT scores. This transformation was done on a cohort group drawn from CLA freshmen entering Fall 1982. The accuracy of the transformation may have contributed to the importance of the PSAT variable in this study. It is suggested that if conversion tables are used, they should be both recent and closely reflect the population under study.

3. Attrition research indicates that the model which accurately reflects an institution is influenced by the characteristics of that institution. Since there currently is no generalized all-purpose attrition model for all institutions, each institution needs to develop its own model. This study suggests that, at least for commuter institutions, theoretical research on attrition can be done with existing data in order to provide institutions with more information about their own patterns of student attrition.

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Table 1

Descriptive Statistics from Independent and Dependent Variables (N=227)

	Range			
Variables	Low	High	Mean	SD
Adjusted income	-13340[a]	124966	9997.34	14386.87
High school rank	22	99	81.67	15.25
PSAT	56	136	96.82	15.74
Sex	0	1	.58	.49
Major chosen	0	1	.78	.42
Home proximity	0	1	.26	.44
Total aid	135	7553	2306.23	1575.20
% Pkg loans	.00	1.00	.30	.34
Grade-point average	1.00	4.00	2.75	.57
Credits completed	4	114	68.05	22.72

[a] A negative number indicates an adjusted income level that is below what is calculated to be needed for the family.

Table 2

Correlation Coefficients Among the Variables in the Model of Student Persistence (N=227)

Variables	Adj Income	HSR	PSAT	Sex	Major Chosen	Home Prox.	Total Aid	% Pkg Loans	GPA	Credits Comp.
Adjusted income	----									
High school rank	0.20**	----								
PSAT	0.23***	0.35***	----							
Sex	0.06	0.14*	-0.05	----						
Major chosen	0.04	0.13*	0.02	0.06	----					
Home proximity	0.10	0.00	0.11	0.03	-0.02	----				
Total aid	-0.25***	-0.09	-0.12	0.03	-0.08	0.20**	----			
% Pkg loans	0.17**	-0.08	-0.15*	0.13*	-0.03	0.06	0.30***	----		
Grage-point average	0.22***	0.41***	0.50***	0.02	0.05	0.02	-0.01	0.00	----	
Credits completed	0.21**	0.34***	0.23***	0.11	-0.04	0.00	0.04	0.09	0.54***	----

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Standardized Regression Coefficients Used to Interpret Causal Model of Student Persistence

	Dependent Variables			
Independent Variables	Total Aid	% Pkg Loans	GPA	Credits Comp.
Adjusted income	-0.26***	0.21**	0.08	0.10
High school rank	-0.01	-0.08	0.26***	0.16**
PSAT	-0.08	-0.17*	0.41***	-0.07
Sex	0.04	0.12	-0.01	0.07
Major chosen	-0.06	-0.03	0.01	-0.09
Home proximity	0.23***	0.06	-0.05	-0.03
Total aid			0.07	0.06
% Pkg loans			0.05	0.05
Grade-point average				0.50***
R^2	0.13	0.09	0.32	0.35

* p <.05. ** p <.01. *** p <.001.

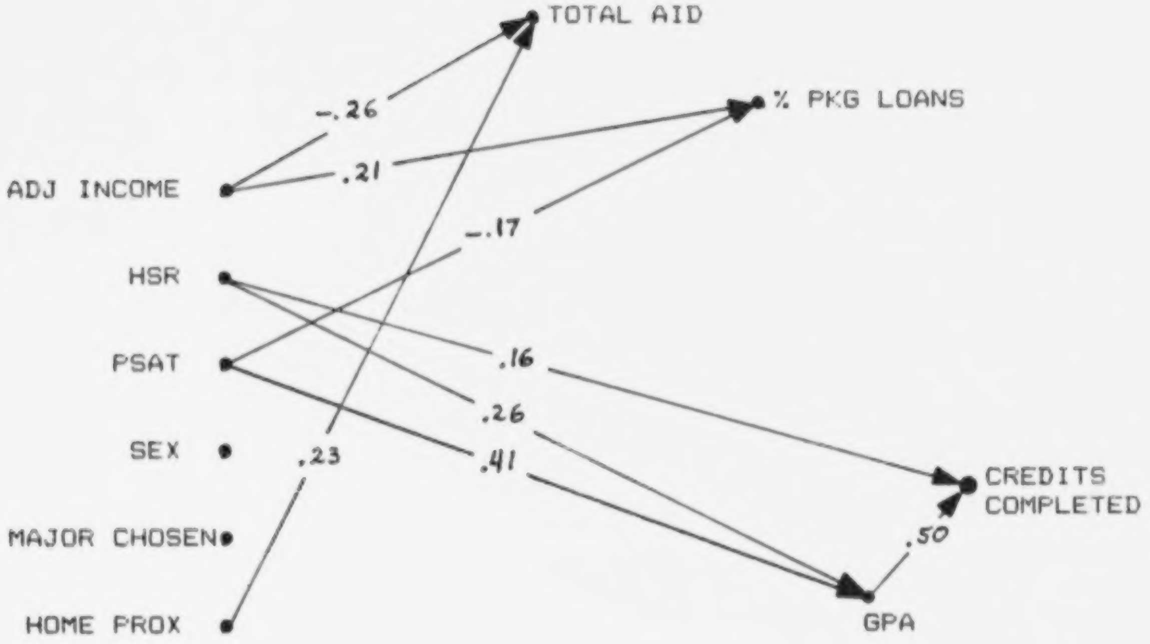
TOTAL AID
% PKG LOANS
-.26
.21
ADJ INCOME
-.17
HSR
PSAT
.16
.26
SEX
.23
.41
CREDITS COMPLETED
MAJOR CHOSEN
.50
HOME PROX
GPA

Figure 1. Reduced Path Model

TAP

The New York State Tuition Assistance Program

A Study of Recent Trends

Presented by

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Program Research Specialist

at the

Fourth Annual NASSGP/NCHELP Research Network Conference

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INTRODUCTION

The New York State Tuition Assistance Program (TAP) is a state-operated program which provides grant assistance to New York State residents attending postsecondary institutions in New York. The objectives of the program are to reduce financial barriers to postsecondary education and to maintain a competitive equilibrium between public and private sectors.

Recently, there has been considerable concern about the decline in TAP utilization. In response to this concern, HESC has prepared this report on recent trends in the TAP program. Research for this project was conducted by HESC's Division of Policy Analysis, with Arlene Olinsky as principal researcher. Supporting input and guidance were provided by HESC Executive Staff, in particular Peter Keitel, Dennis Cabral and Frank Hynes.

This study describes trends in the TAP program during the most recent five-year period, 1981-82 through 1985-86. Some data for 1980-81 are included where useful in establishing trends. Since the primary objective of TAP is the improvement of postsecondary educational access, this report focuses on undergraduate recipients. Certain measures are employed to indicate the degree to which TAP is helping low- and middle-income students with tuition costs. These measures include:

I Changes in the numbers of TAP recipients in relation to enrollment trends;

II Changes in the income levels of TAP recipients and their relationship to income trends in New York State;

III Changes in the relationship between TAP assistance and tuition costs; and

IV Changes in the proportional representation of low-income recipients in the TAP program.

I. TAP RECIPIENTS AND ENROLLMENTS

A longitudinal analysis of trends in undergraduate TAP recipient numbers is one way to show how program usage has varied. However, recipient numbers alone cannot accurately measure access, since the TAP recipient pool is limited to full-time state residents who fall within the program's eligible income range. Thus, a more correct measure of access is the TAP utilization rate, i.e., the proportion of full-time, state resident undergraduate students who receive TAP.

Recipients. Overall, TAP recipients decreased from 1981-82 to 1985-86. However, as indicated in Chart 1, recipient numbers were higher in enrichment years (1981-82 and 1984-85), because of the newly eligible income groups, than they were in the periods between enrichments. This pattern should not be surprising because, even when enrollment levels remain relatively stable, the annual inflation of incomes causes some recipients at the upper end of the TAP income spectrum to move out of the program's eligibility range. This phenomenon, known as "bracket creep," is a reflection of the movement into higher income levels among taxpayers in general.

If recipient levels are examined by sector (see Chart 2), all sectors, with the exception of the Proprietary sector, show fewer TAP recipients in 1985-86 than in 1981-82. The Proprietary sector shows continuous growth in the number of TAP recipients until 1984-85, followed by an abrupt levelling off in 1985-86.

SUNY senior and Independent sector colleges followed the overall pattern of increases in enrichment years and gradual declines in the years between. However, CUNY senior colleges have had a steady decline in TAP recipients during the last five years.

Among community colleges, CUNY exhibited a fairly stable pattern of TAP recipients, although there was some decline during the five-year period. SUNY community colleges experienced a steady decline since 1981-82, with the greatest loss occurring between 1984-85 and 1985-86.

Enrollments. Total full-time undergraduate New York State enrollments* grew through 1983-84 and then had a large decline in 1984-85, which continued the following year (see Chart 1). Not so coincidentally, the number of New York State high school seniors, who reported college-going plans within New York State, had the largest percentage decrease (-5.0 percent) in 1984 (see Table 1, following). That table also shows that the number of high school graduates has declined steadily since 1980. At the same time, the percentage going on to college in New York State has remained level since 1983, while the percentage attending college out-of-state has risen. Thus, an increasing proportion of the already declining pool of high school graduates is being attracted elsewhere.

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*Enrollments reported by the New York State Education Department are for degree-granting institutions. Non-degree proprietary school enrollments are not shown.

TABLE 1
New York State
Public and Non-Public High School Graduates

	Total Grads	College-Going				Employment		Military		Other	
		In State		Out of State							
		%	#	%	#	%	#	%	#	%	#
1980	235,937	55.8%	131,784	13.2%	31,175	21.5%	50,777	3.3%	7,794	6.1%	14,406
1981	230,237	56.1	129,292	13.3	30,652	20.8	47,937	3.7	8,528	6.0	13,828
1982	226,856	57.8	131,255	12.5	28,385	20.3	46,098	3.9	8,856	5.4	12,262
1983	216,082	59.1	127,704	12.7	27,442	18.7	40,407	4.3	9,292	5.2	11,236
1984	205,901	58.9	121,276	13.7	28,208	18.4	37,886	4.2	8,648	4.8	9,883
1985	197,595	59.0	116,581	14.4	28,454	17.9	35,370	4.1	8,101	4.6	9,089

Row percentages may not add to 100% due to rounding.

Source: "Distribution of High School Graduates and College-Going Rates," Fall 1980-1985, New York State Education Department.

The public sector senior colleges, CUNY and SUNY, have shown steady declines in full-time undergraduate enrollments since 1981-82, while Independent sector enrollments have remained relatively stable (see Chart 3). CUNY community colleges have shown steady increases, as have degree-granting Proprietary schools (except for a moderate decline in degree-granting Proprietary school enrollments between the two most recent years). These facts, taken together, suggest that students may be opting for shorter programs. However, more information would be necessary to establish that conclusively.

There are several factors that affect both full-time undergraduate enrollments and TAP utilization. One factor is that the traditional 15- to 19-year old feeder population for postsecondary education has declined in New York State from 1.6 million in 1980 to approximately 1.39 million in 1985 (see Chart 4). Projections are for a continued, though less steep, decline until 1995, after which some growth is projected. However, the growth will be moderate and not sufficient to attain 1980 levels. Furthermore, although the percentage of college-going high school graduates has increased since 1980, the actual number who go on to college in-state has gone down by 11.5 percent because there are fewer high school graduates (see Table 1).

However, the decline in the high school age population does not present the full picture when considering TAP declines. Another consideration must be the underserved population - the growing number of low-income students who are not going to college because of financial barriers. Demographic projections predict that more students entering education will be from poverty households, from single-parent households and from minority backgrounds. Thus, despite the smaller feeder population for higher education, it is clear that there will be a major increase in the proportion who will require financial assistance.

Another factor is the large number of non-traditional older and returning students who are represented in postsecondary enrollments today. Many of these students attend school on a part-time basis because of family and work responsibilities. However, HESC statistics indicate that growing numbers of older students are receiving TAP and attending full time. Chart 5 shows that the proportion of TAP recipients who are over 30 years old has increased from 9.1 percent in 1981-82 to 12.1 percent in 1985-86. However, the number of older recipients has not fully compensated for the loss of those 30 and younger. Nor is it likely to do so among full-time enrollments, given older students' propensity for part-time attendance. However, the growth in non-traditional students signals the need for program outreach and information efforts in areas where these groups may be reached.

In addition to full-time enrollment trends, rates of New York State residency among full-time undergraduates must be considered. As would be expected, the proportion of full-time undergraduates who are state residents is higher in the public sector, i.e., SUNY and CUNY, than in the Independent sector. Furthermore, the percentage of state residents among full-time undergraduates has had the largest decline from 1981-82 to 1985-86 in the Independent sector (see Chart 3A). In 1981-82, 73.9 percent of full-time undergraduates attending Independent sector institutions were New York State residents; that percentage dropped to 72.4 percent in 1985-86.

TAP Utilization Rates. In the context of this report, utilization rate refers to the percent of full-time undergraduate students who are also residents of New York State and receive TAP. Table 2, following, shows these factors. At SUNY and the Independent sector, the pattern of utilization tends to mimic the trend in recipient numbers, with rises in enrichment years and gradual declines in-between. However, there appears to be an overall downward trend in utilization. At CUNY, where TAP utilization is the highest (due to lower income profiles), there has been a steady decline during the five-year period. Also, because of the generally lower income profiles of students attending CUNY, enrichments do not appear to boost TAP use there as much as at SUNY and Independent sector schools. In fact, CUNY senior colleges and community colleges are the only sectors in which there was no boost in utilization rate in 1984-85. What is more, despite increased enrollments at CUNY community colleges, the largest decline in TAP utilization by far is in that sector.

TABLE 2
Undergraduate TAP Utilization Rates 1981-82 Through 1985-86

	1981-82	1982-83	1983-84	1984-85	1985-86
CUNY SR					
FT UG Enrollments	70,520	68,869	67,648	64,349	63,147
Residency Rate	96.3%	96.0%	95.6%	95.5%	95.4%
TAP Recipients	45,992	43,160	40,228	37,916	35,501
Utilization Rate	67.7%	65.3%	62.2%	61.7%	58.9%
CUNY CC					
FT UG Enrollments	30,924	31,604	33,542	33,176	35,236
Residency Rate	96.3%	96.0%	95.6%	95.5%	95.4%
TAP Recipients	26,905	27,749	27,737	26,432	25,721
Utilization Rate	90.3%	91.5%	86.5%	83.4%	76.5%
SUNY SR					
FT UG Enrollments	133,159	132,159	131,459	129,026	126,710
Residency Rate	96.2%	96.1%	96.0%	96.0%	96.0%
TAP Recipients	62,854	59,776	57,379	59,003	54,369
Utilization Rate	49.1%	47.1%	45.5%	47.6%	44.7%
SUNY CC					
FT UG Enrollments	92,702	93,906	95,929	88,302	83,140
Residency Rate	96.2%	96.1%	96.0%	96.0%	96.0%
TAP Recipients	44,994	43,752	43,627	42,613	39,846
Utilization Rate	50.5%	48.5%	47.4%	50.3%	49.9%
Independent					
FT UG Enrollments	221,149	220,064	221,303	219,145	221,197
Residency Rate	73.9%	73.6%	73.2%	72.8%	72.4%
TAP Recipients	93,584	88,936	85,012	87,860	83,458
Utilization Rate	57.3%	54.9%	52.5%	55.1%	52.1%

II. RECIPIENT INCOMES

Earlier in this report, the phenomenon of "bracket creep" was suggested as one reason for the longitudinal decrease in the number of TAP recipients. As incomes in the TAP recipient pool grow and families shift into higher income categories, some eventually move above the eligible income cut-off for TAP. This activity in the TAP recipient pool is a reflection of the upward movement of incomes of New York State tax filers in general. For example, examination of income distributions among New York State resident income tax returns* indicates that the percent of returns below $25,000 AGI dropped from 77.1 percent in 1980 to 67.2 percent in 1984. While New York State taxpayers do not comprise a population identical to that of TAP recipients, comparability of a trend such as "bracket creep" is clearly indicated.

If we compare the annual decline in the number of TAP recipients with income up to $25,000 NTB for the years 1981-82 to 1985-86 to the annual decline in the percent of taxpayers under $25,000 AGI from 1980 to 1984 (TAP is based on prior-year income), we note similar movement:

Award Year:	1981	1982	1983	1984	1985
TAP UG Recipients up to $25,000 NTB	300,997	296,345 -1.5%	291,838 -1.5%	283,255 -2.9%	267,830 -5.4%
NYS Resident* Returns under $25,000 AGI (for year on which TAP is based)	77.1%	73.6% -3.5%	72.1% -1.5%	69.7% -2.4%	67.2% -2.5%

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*Data provided in "New York Personal Income for Income Year 1980 By County of Residence and Size of Income," New York State Department of Taxation and Finance. Also 1981 through 1984.

For example, a 1.5 percent decline from 1982 to 1983 in TAP recipients with incomes below $25,001 NTB reflects the same decline in 1982 in the proportion of New York State tax returns under $25,000 AGI. In 1984, TAP recipients with incomes below $25,001 NTB declined by 2.9 percent, while the proportion of 1983 tax returns under $25,001 AGI declined by 2.4 percent.

Thus, the "bracket creep" that affects the population at-large also has its effect on the TAP population.

III. TUITION COSTS AND AWARD AMOUNTS

Another important measure of the TAP program's effectiveness is its ability to keep up with escalating tuition costs. Since an objective of TAP is to provide tuition assistance, the program's level of support relative to cost over the five-year period should be examined. Because award amounts are determined by income level and tuition costs, it is appropriate to compare longitudinally the relationship between average award amounts and average tuition for a given sector and income category. Charts 6 through 11 indicate how award-to-tuition ratios have changed over time in each of the sectors, for recipients in different income categories. Charts 6 through 9 show that award-to-tuition ratios do not change for incomes above $17,000 in SUNY and CUNY. However, in the Independent and Proprietary sectors, those ratios continue to decrease for recipients with incomes over $17,000 (see Charts 10 and 11).

In the public sector (CUNY and SUNY), the award-to-tuition ratio generally increased through 1984-85, and then levelled off in 1985-86, at both senior colleges and community colleges. In these sectors, the maximum award equals the cost of tuition. Therefore, increases in tuition charges cause concomitant increases in awards. Recipients with incomes above $17,000 experienced some decrease in the percent of tuition covered by TAP until the 1984 enrichment, when the income threshold for maximum TAP was increased from $4,000 to $5,000 NTB (thereby raising award amounts for recipients with incomes over $4,000) and the minimum award increased from $250 to $300. The combined effect of these provisions was increased award amounts in all income categories above $4,000 NTB.

In the private sector, the pattern appeared to be reversed. Recipients at Independent and Proprietary sector schools experienced a gradual reduction in award-to-tuition ratios, as tuition costs escalated and the maximum award remained constant. This trend was most apparent at the lowest income levels. The 1984 enrichment, in addition to the provisions described above, raised the maximum award in the Independent sector, thereby increasing the award-to-tuition ratios in that sector. The Proprietary sector, however, continued to experience decline in the percent of tuition that was covered by TAP.

Even when TAP's proportional contribution toward tuition is maintained, higher tuitions mean more in actual dollars that students must pay. Thus, even if TAP continues to cover the same percentage of costs, students must pay more dollars for the unassisted portion of tuition costs. A further consideration is that, while TAP provides tuition assistance, students must rely on additional aid and their own and family resources to pay for indirect costs, e.g., room and board, books, transportation and, where applicable, dependent costs.

IV. REPRESENTATION OF LOW-INCOME RECIPIENTS

An important consideration relating to access is the differential effect of the decline in TAP utilization among sectors and income categories. Table 3, following, indicates that the greatest reduction in TAP recipients over the last five years occurred at CUNY senior colleges. Since the income profiles of recipients in that sector are known to be lower than those of recipients at SUNY and Independent sector schools, this suggests that the representation of the neediest within the TAP population is declining.

TABLE 3

Changes in Full-Time Undergraduate Enrollments (State Residents) and TAP Recipients Between 1981 and 1985

Sector	FTUG Enrollments (State Residents) Change in Numbers	%	TAP Recipients Change in Numbers	%
CUNY Sr.	-7,669	-11.3%	-10,491	-22.8%
CUNY CC	+3,835	+12.9	- 1,184	- 4.4
SUNY Sr.	-6,457	- 5.0	- 8,485	-13.5
SUNY CC	-9,365	-10.5	- 5,148	-11.4
Independent	-3,282	- 2.0	-10,126	-10.8

This idea is further substantiated by the data in Table 4, which show that the largest decline, on a percentage basis, in the $0-$5,000 NTB income category was sustained by CUNY senior colleges (-29.4 percent). SUNY senior colleges and Independent sector schools had their greatest percentage decreases in the $11,000-$20,000 and $5,000-$11,000 ranges, respectively.

TABLE 4

Percentage Change in Recipients by Income Category 1981 to 1985

	CUNY Sr.	CUNY CC	SUNY Sr.	SUNY CC	Independent	Proprietary
$ 0- 5K	-29.4%	- 8.0%	-18.1%	- 8.9%	-15.9%	+65.1%
5-11K	-23.8	- 8.9	-25.1	-26.5	-25.8	+35.5
11-17K	-15.1	+ 8.4	-28.3	-30.6	-23.7	+44.7
17-20K	-11.3	+ 5.7	-28.3	-23.3	-17.8	+38.9
20-25K	+13.1	+39.9	+ 1.3	+10.9	+18.3	+96.6
All Incomes	-22.8%	- 4.4%	-13.5%	-11.4%	-10.8%	+61.1%

Thus, the 6.4 percent overall decline in TAP recipients between 1981 and 1985 was not shared equally among all sectors or among all income categories. While all of the sectors, with the exception of the Proprietary sector, had declines in recipients, changes ranged from a high of -22.8 percent at CUNY senior colleges to a low of -4.4 percent at CUNY community colleges (despite considerable enrollment gains at the community colleges). Excluding the highest income range ($20,000-$25,000), where all sectors had gains because of the phase-in of the 1981 enrichment, the Proprietary sector's largest gain was in the $0-$5,000 income category (+65.1 percent). This fact, combined with the substantial decline in low-income recipients at CUNY senior colleges (-29.4 percent), suggests the possibility of inter-sector shifting resulting from low-income students' opting for shorter, more job-oriented programs.

SUMMARY

There has been a decline in the number of TAP recipients during the past five years. The most salient feature of this decline is that it has differentially affected recipients in different sectors and in certain income categories within these sectors. Overall, CUNY senior colleges had the greatest decline in recipients (-22.8%). Furthermore, the greatest reduction at CUNY senior colleges was among recipients in the lowest income category, $0-$5,000 NTB, while SUNY senior colleges and Independent sector schools had their greatest decreases in recipients in the $11,000-$20,000 and $5,000-$11,000 ranges.

Some factors which have been suggested as causes for the differential declines are recruitment practices and changes in administrative policies at educational institutions, and increases in other (non-tuition) educational costs. Furthermore, the changes in federal administrative and funding policies in student financial aid during the last five years have had a negative impact on student access.

Factors related to the overall decline comprise demographic and economic changes that have occurred in our state and which are expected to continue having an effect on postsecondary educational policy. They include:

1) The decline in the population of 15- to 19-year olds, who comprise the traditional pool for postsecondary education enrollments
2) The decreasing number of high school graduates
3) The growing number of older students, who tend to participate in postsecondary education on less than a full-time basis

4) The inflation of incomes, which tends to produce "bracket creep," i.e., the rising of recipient incomes above the eligibility cut-off levels

This list is not intended to be exhaustive. Certainly other factors, such as the unemployment situation among youth and the attractiveness of the military may be involved. For example, it is estimated that 45 percent of the college-eligible high school graduates go directly into the military service.*

Finally, this study makes it clear that if the current pattern of TAP utilization persists, declines in the number of recipients will continue to occur. It is also clear that declines in TAP utilization cannot be viewed in isolation. Any restructuring must reflect the relationship between state, federal, and institutional programs and their effect on student access.

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*Source: Harold Hodgkinson, "Hodgkinson: The Demographic Picture and What It Means for Higher Education," Black Issues in Higher Education. Vol. 3, No. 22 (March 1, 1987), pp. 2-3.

CHART 1

UNDERGRADUATE TAP RECIPIENTS AND FULL-TIME ENROLLMENTS-TOTAL ALL SECTORS/1980-81 TO 1985-86

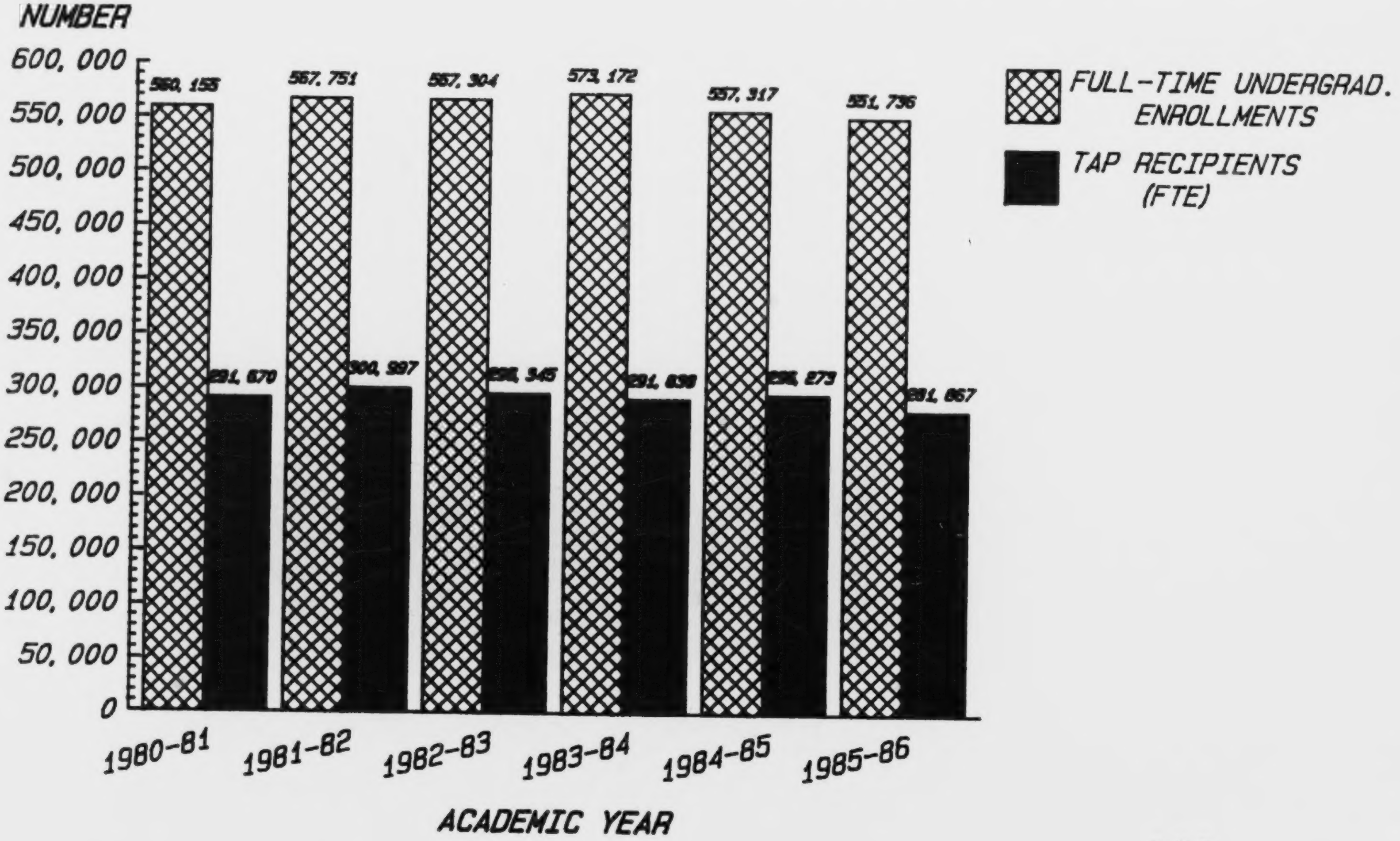


CHART 2

UNDERGRADUATE TAP RECIPIENTS BY SECTOR 1980-81 THROUGH 1985-86

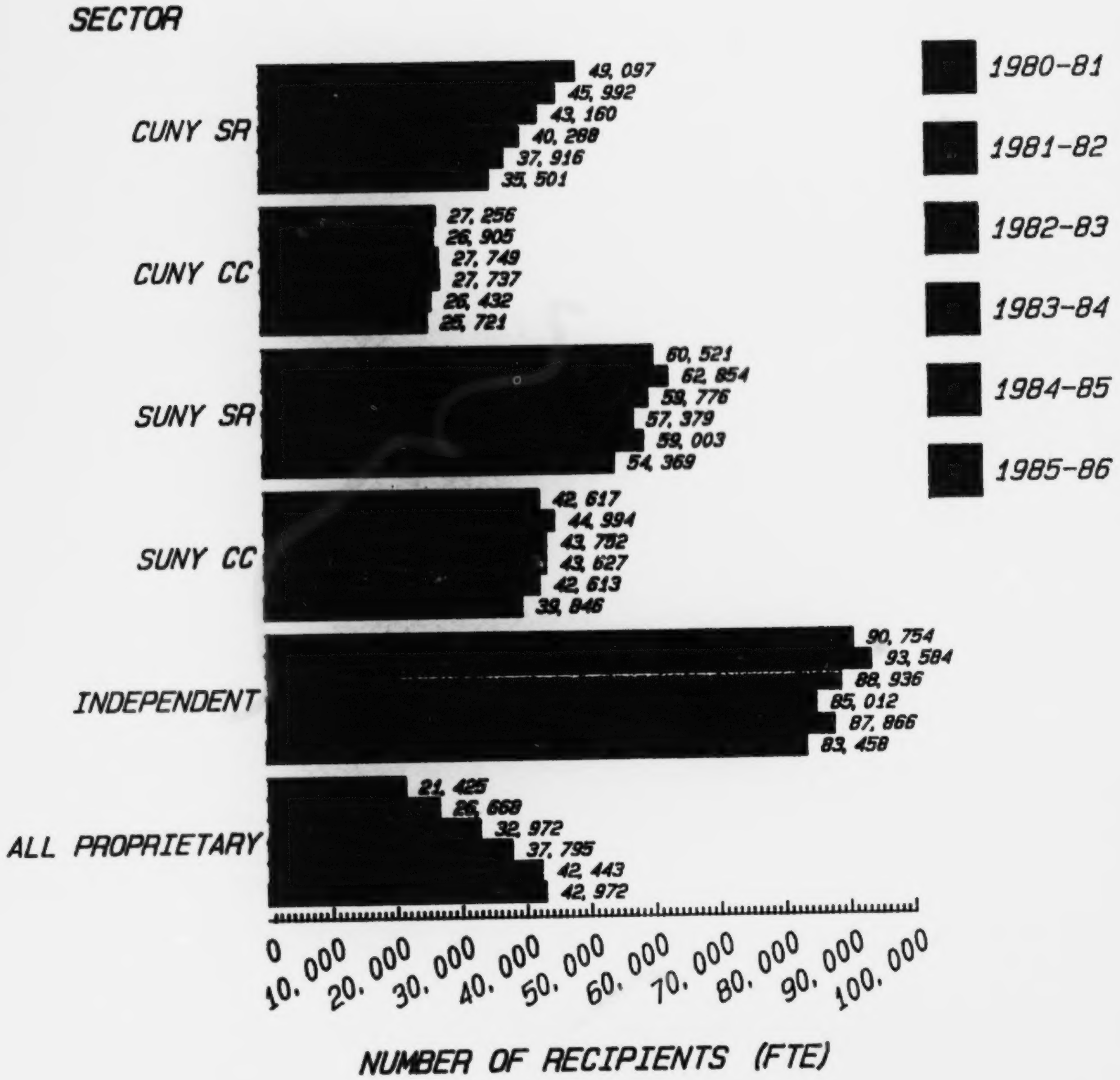


CHART 3

FULL-TIME UNDERGRADUATE ENROLLMENTS BY SECTOR / 1980-81 THROUGH 1985-86

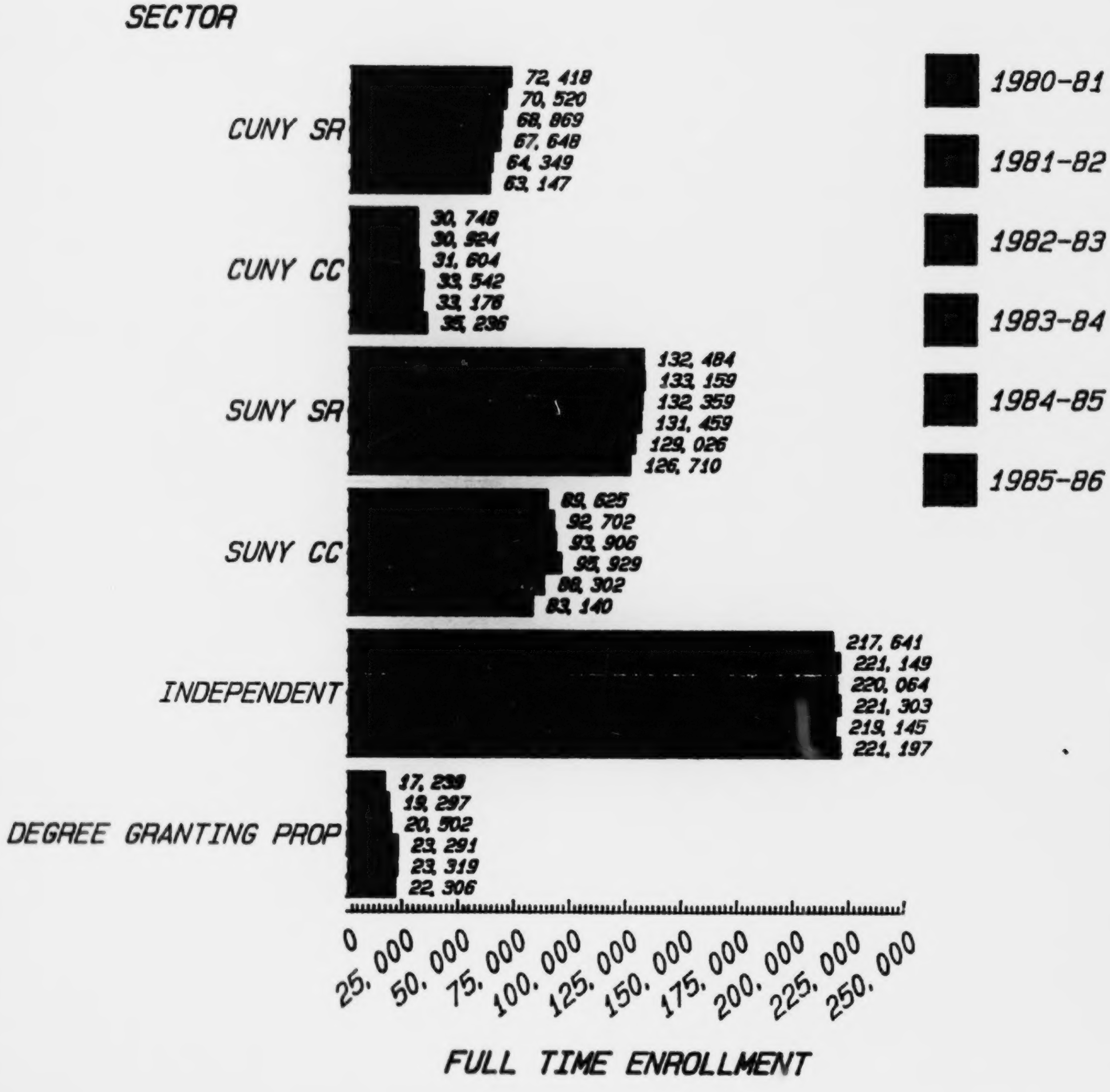


CHART 3A

FULL-TIME UNDERGRAD. FALL ENROLLMENTS BY SECTOR TOTAL AND STATE RESIDENTS 1981-82 VS. 1985-86

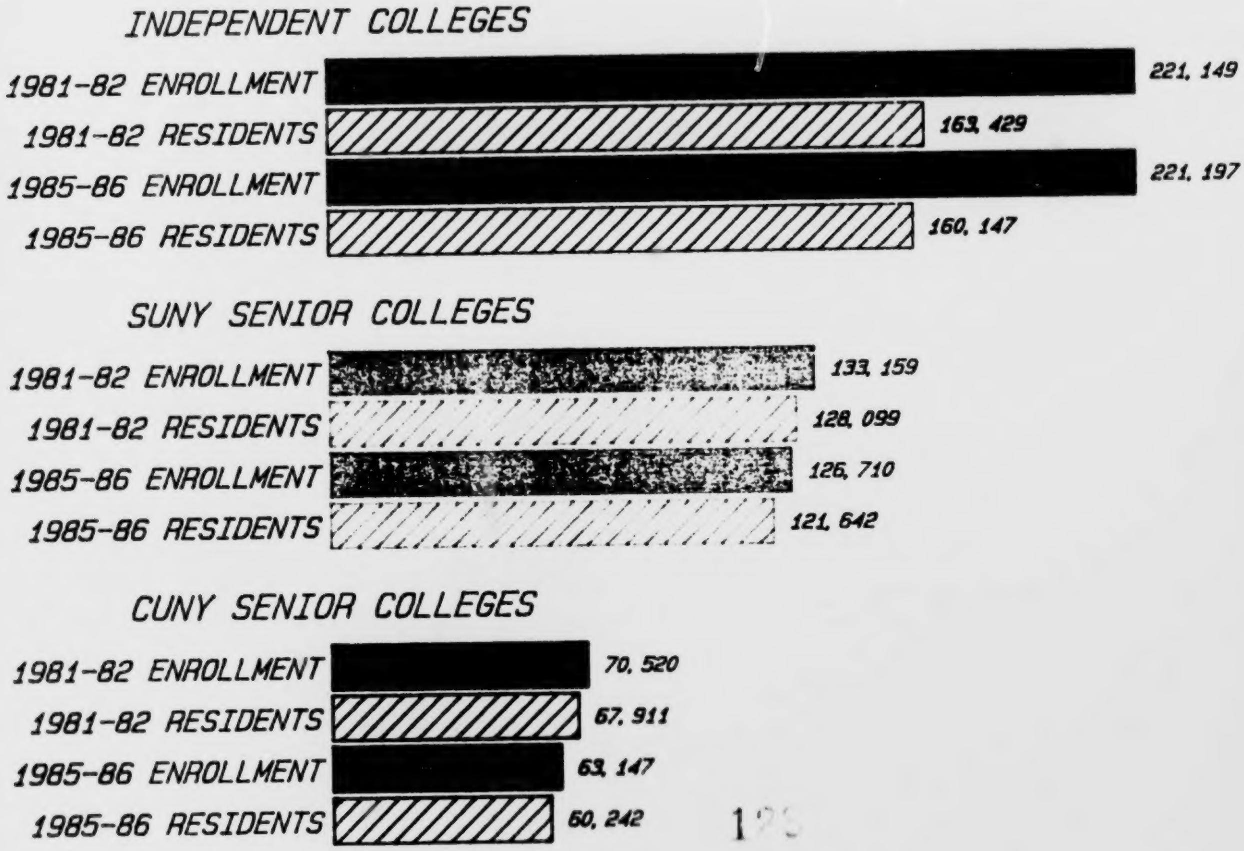
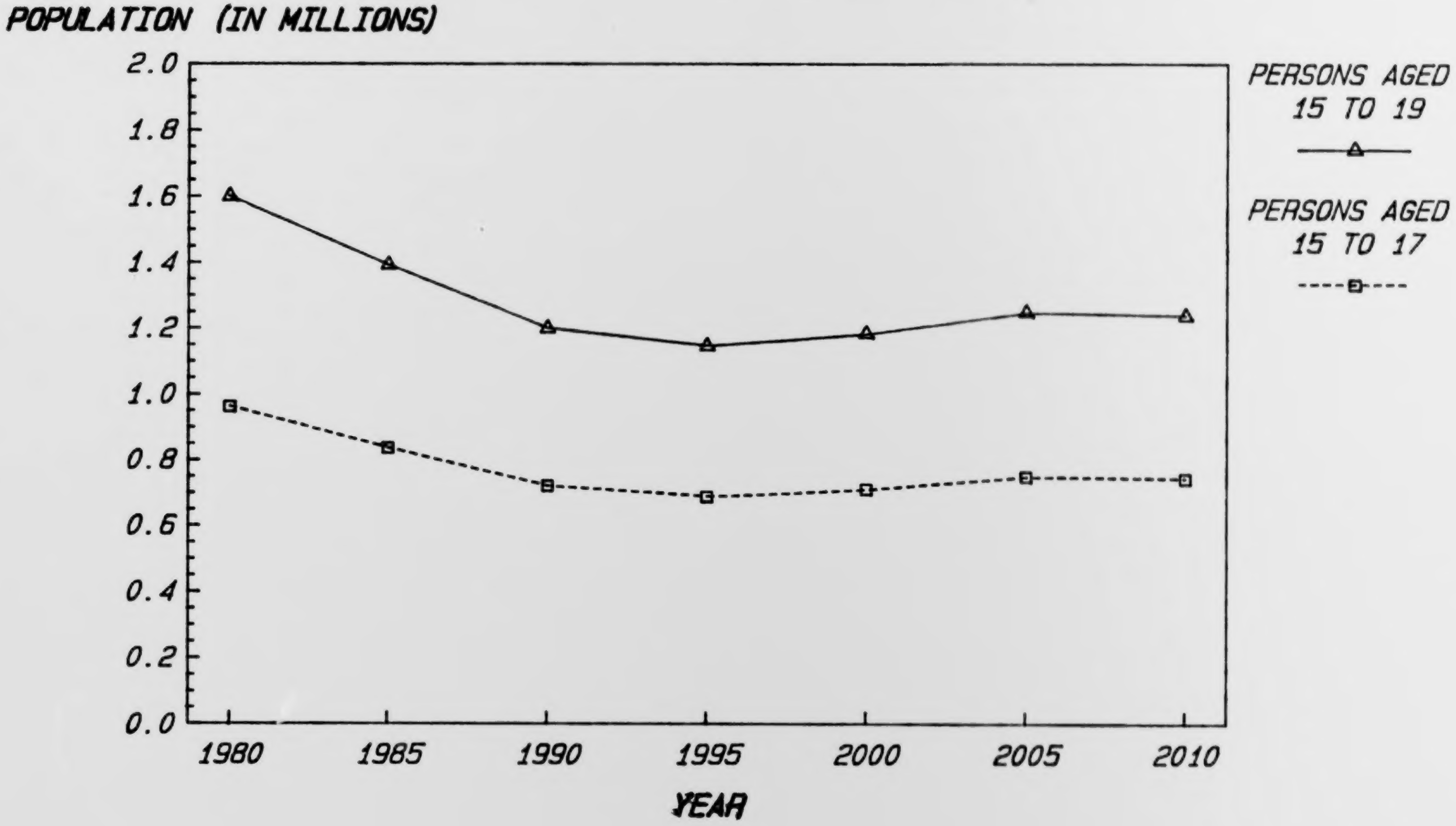


CHART 4

PERSONS 15 TO 17 AND 15 TO 19
NEW YORK STATE, 1980 TO 2010



SOURCE: "Official Population Projections for New York State Counties: 1980-2010", New York State Department of Commerce

CHART 5

PERCENTAGE OF UNDERGRADUATE TAP RECIPIENTS BY AGE CATEGORY / 1981-82 THROUGH 1985-86

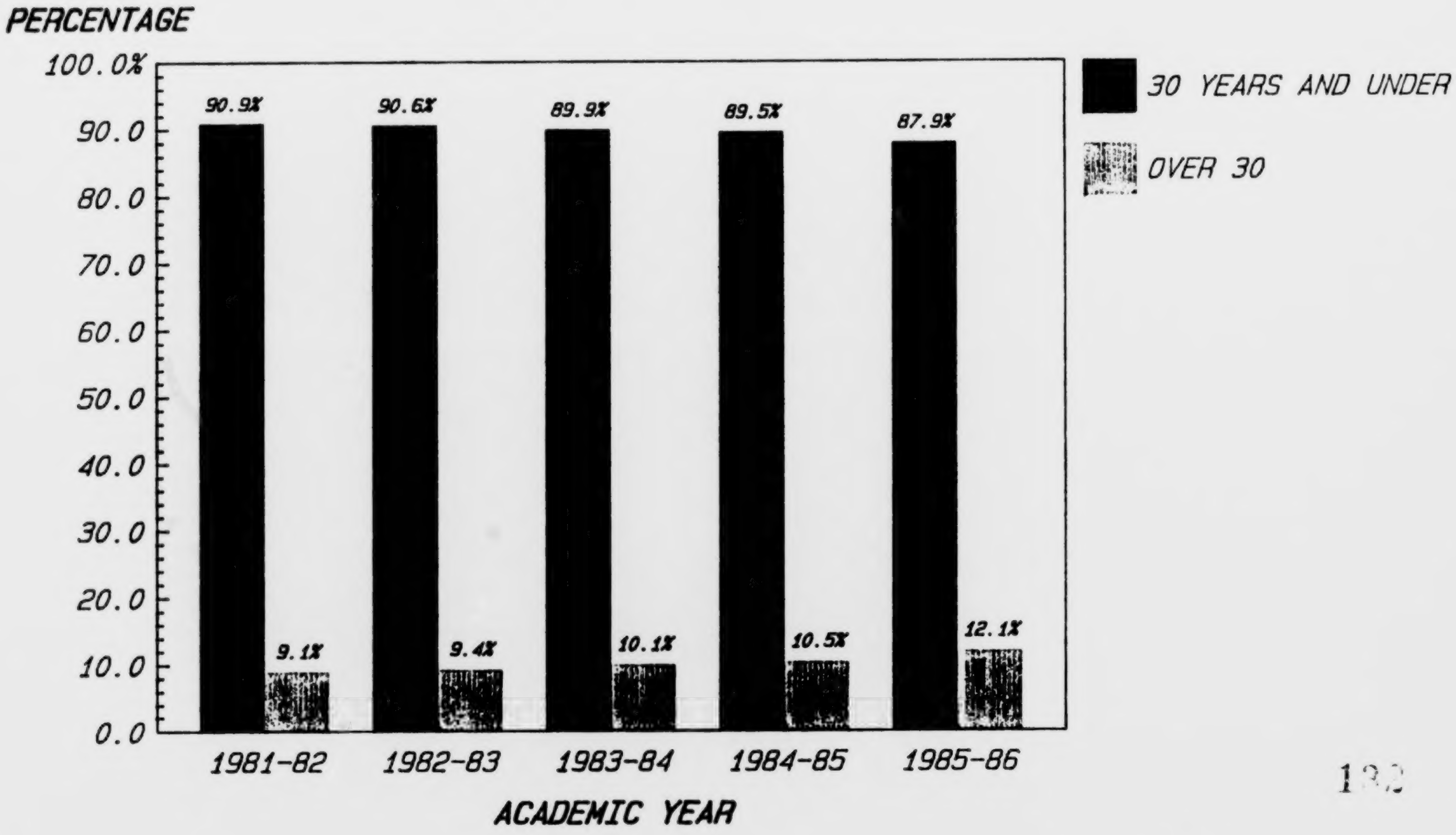
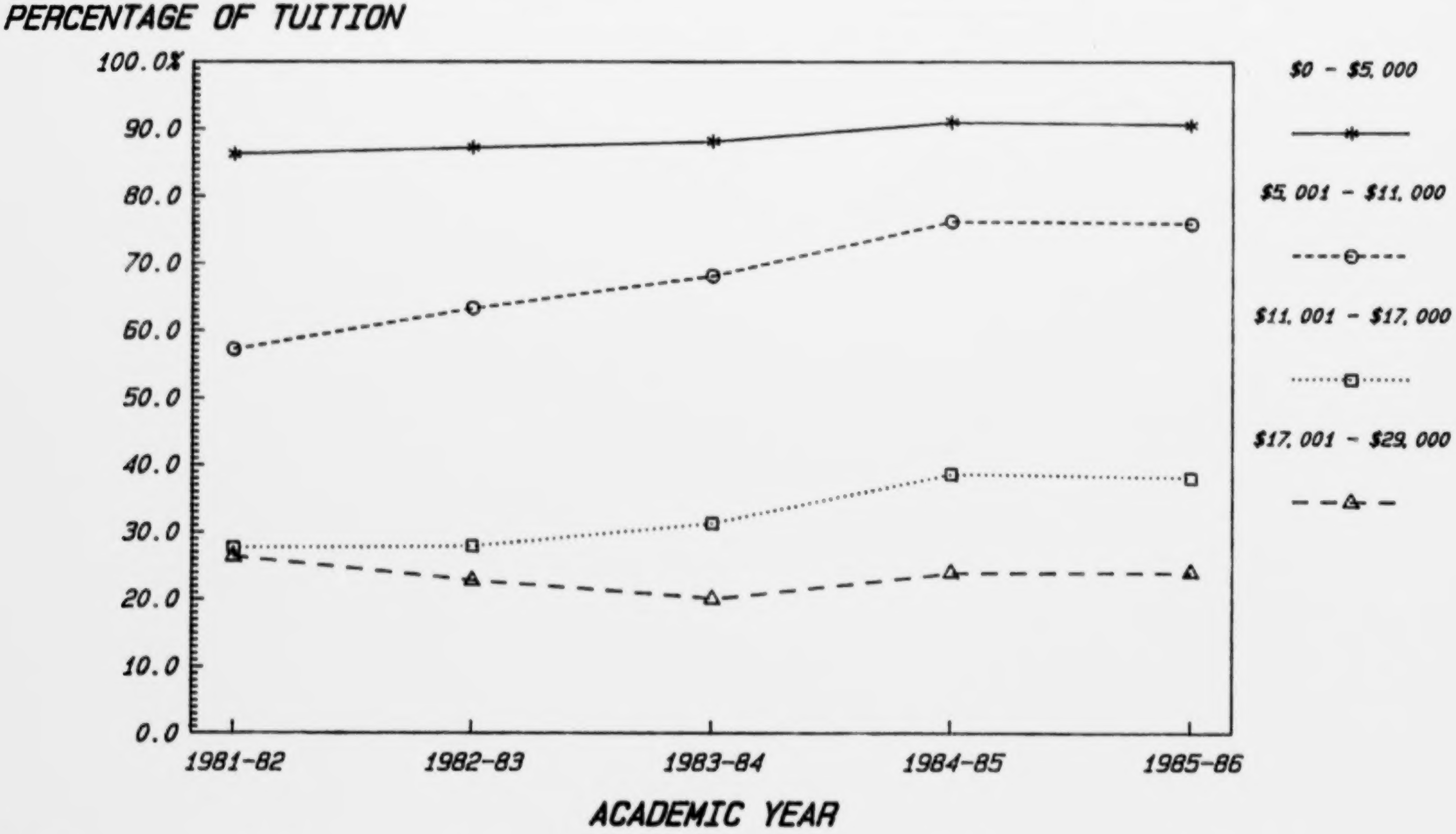


CHART 6

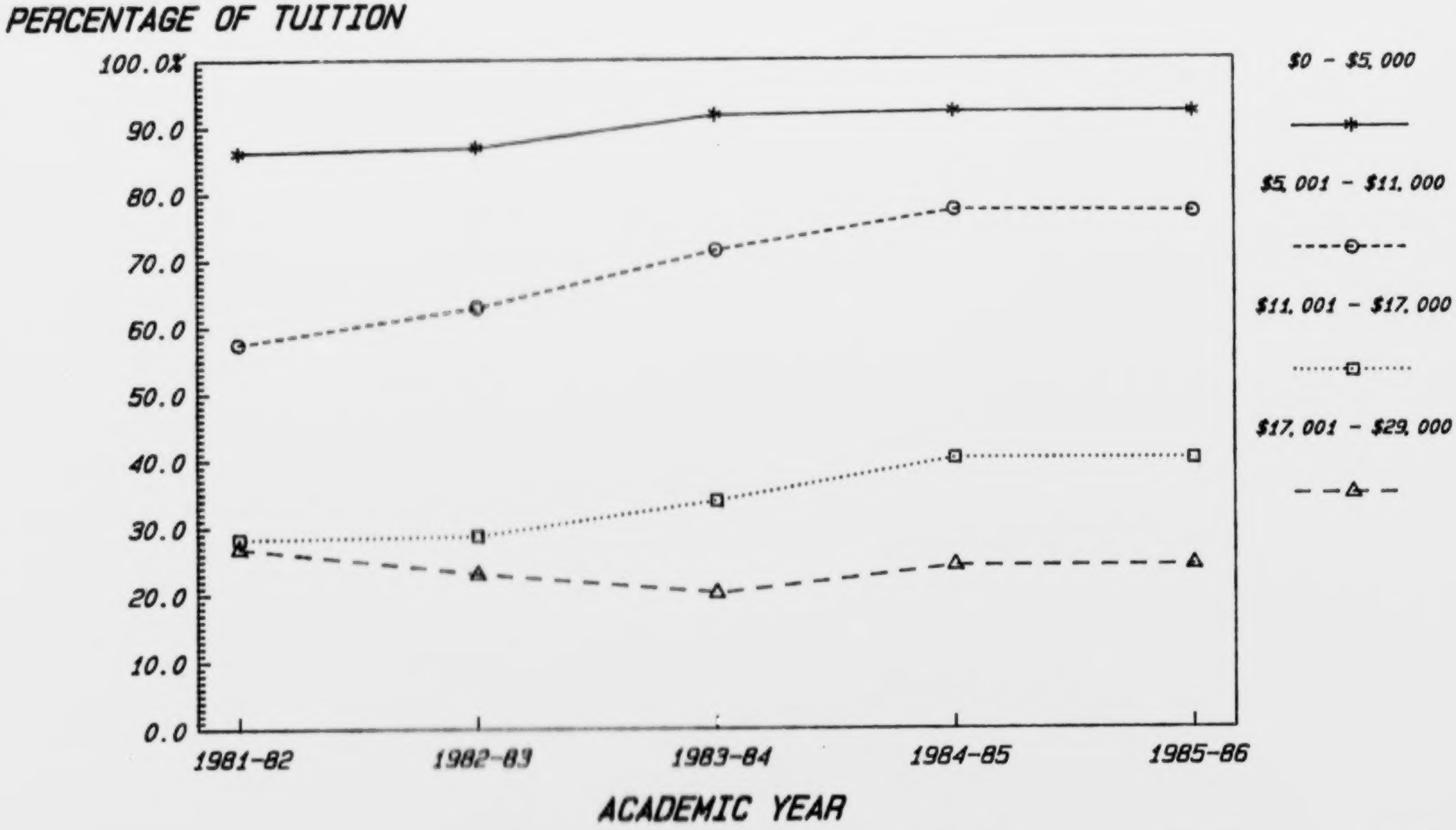
UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION
CUNY SR / 1981-82 TO 1985-86



$0 - $5,000	86.2%	87.2%	88.1%	91.0%	90.5%
$5,001 - $11,000	57.2	63.3	68.1	76.2	75.8
$11,001 - $17,000	27.6	27.9	31.3	38.6	38.0
$17,001 - $29,000	26.3	22.7	20.0	23.9	23.9

CHART 7

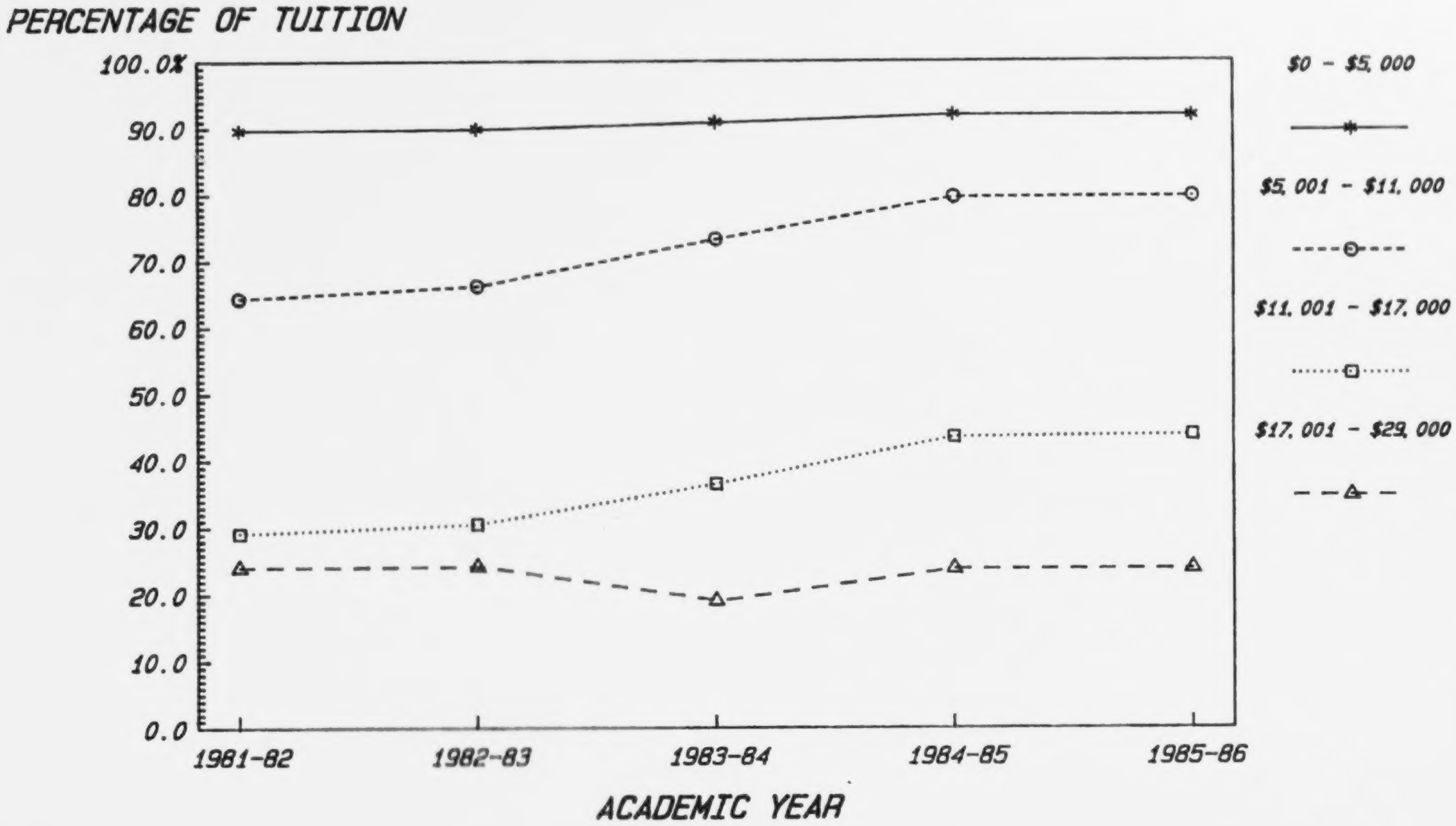
UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION
CUNY CC / 1981-82 TO 1985-86



$0 - $5,000	86.1%	86.9%	91.7%	92.2%	92.0%
$5,001 - $11,000	57.4	62.9	71.4	77.4	77.0
$11,001 - $17,000	28.2	28.7	33.9	40.2	40.0
$17,001 - $29,000	26.8	23.0	20.1	24.2	24.2

CHART 8

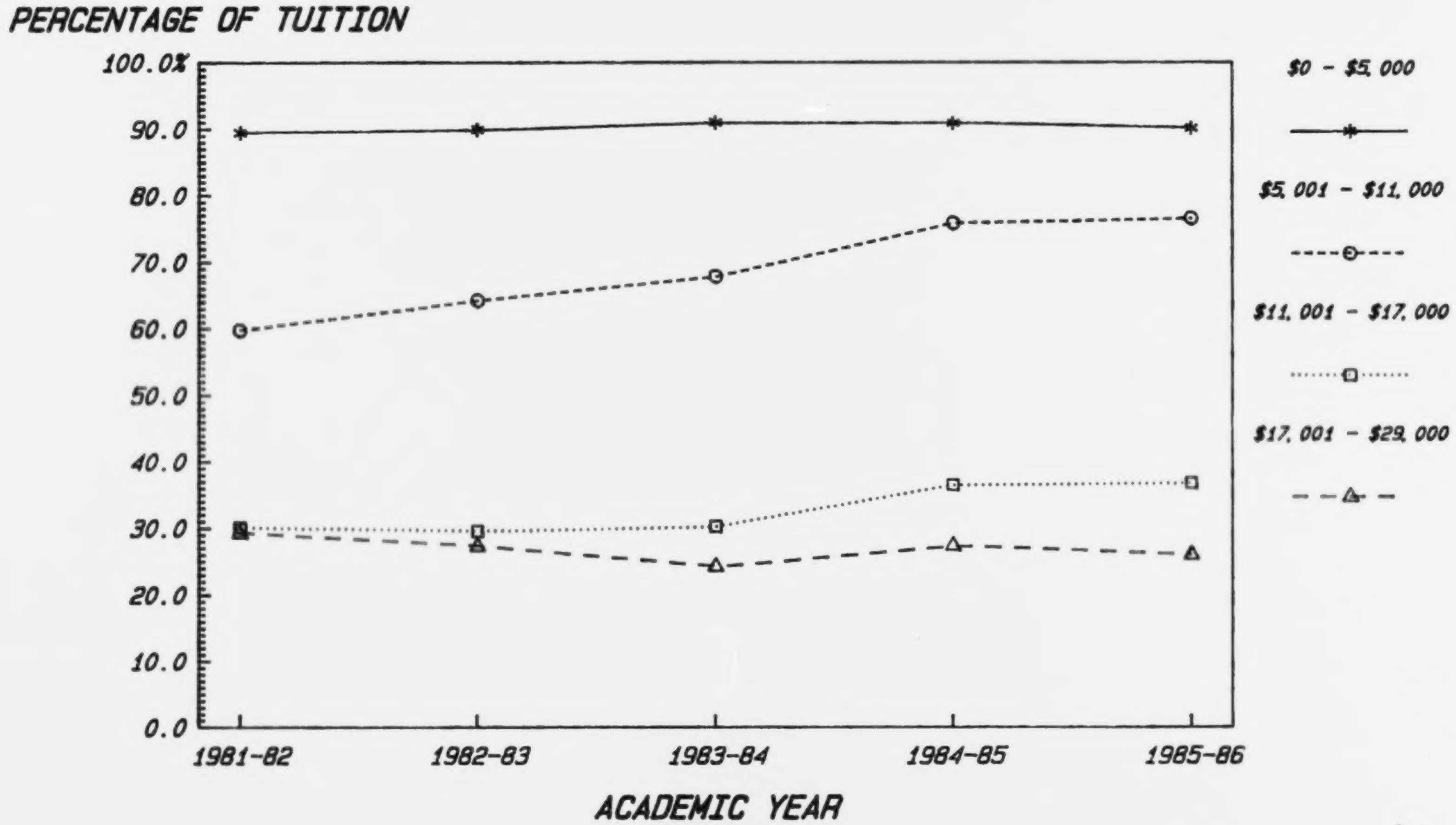
UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION
SUNY SR / 1981-82 TO 1985-86



$0 - $5,000	89.6%	89.8%	90.8%	91.9%	91.7%
$5,001 - $11,000	64.3	66.2	73.3	79.6	79.7
$11,001 - $17,000	29.1	30.5	36.5	43.5	43.8
$17,001 - $29,000	24.0	24.2	19.0	23.8	23.8

CHART 9

UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION
SUNY CC / 1981-82 TO 1985-86



$0 - $5,000	89.4%	89.8%	90.9%	90.8%	90.0%
$5,001 - $11,000	59.7	64.2	67.8	75.8	76.5
$11,001 - $17,000	30.0	29.5	30.2	36.4	36.7
$17,001 - $29,000	29.2	27.2	24.2	27.3	25.9

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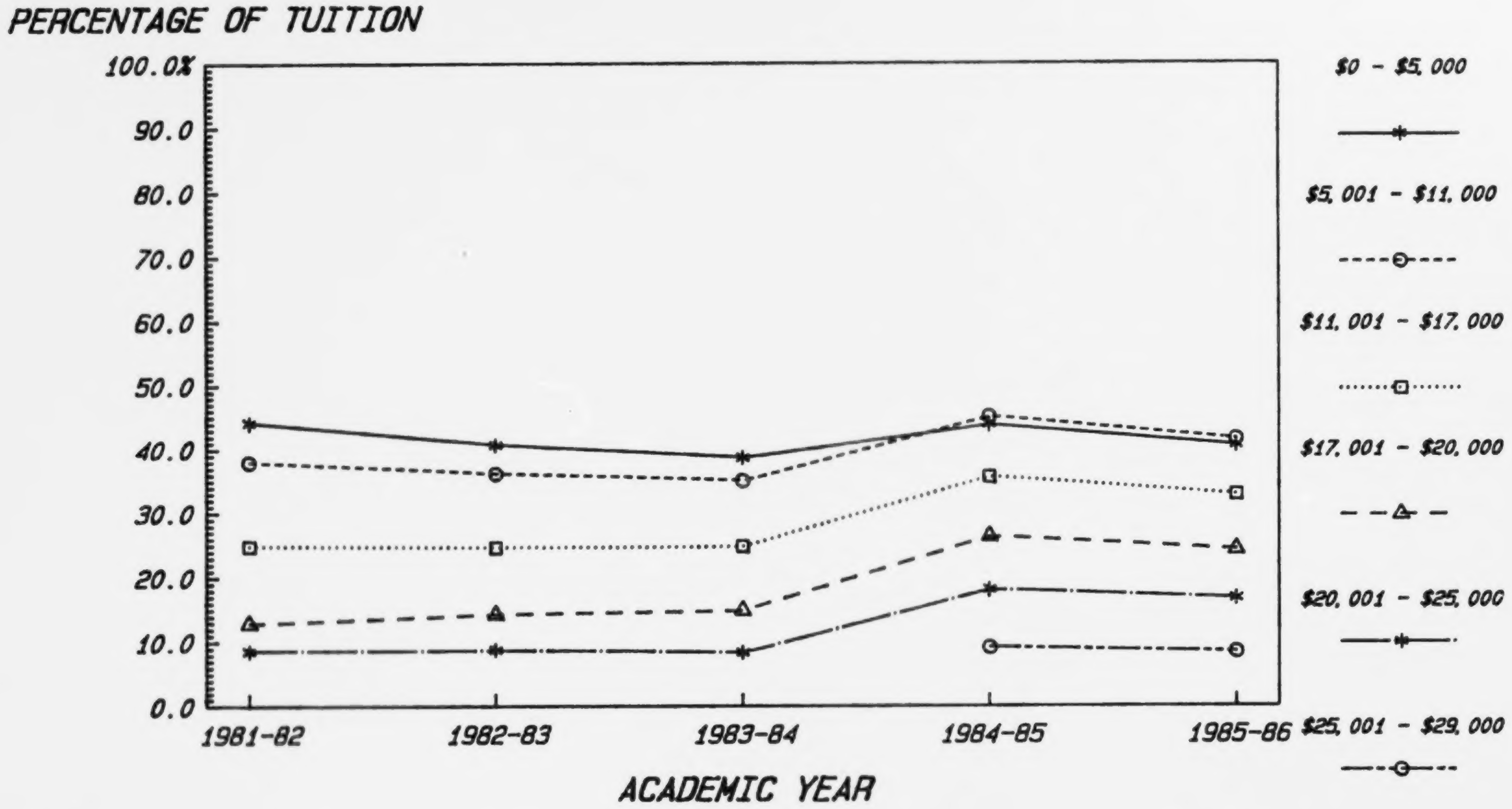
CHART 10

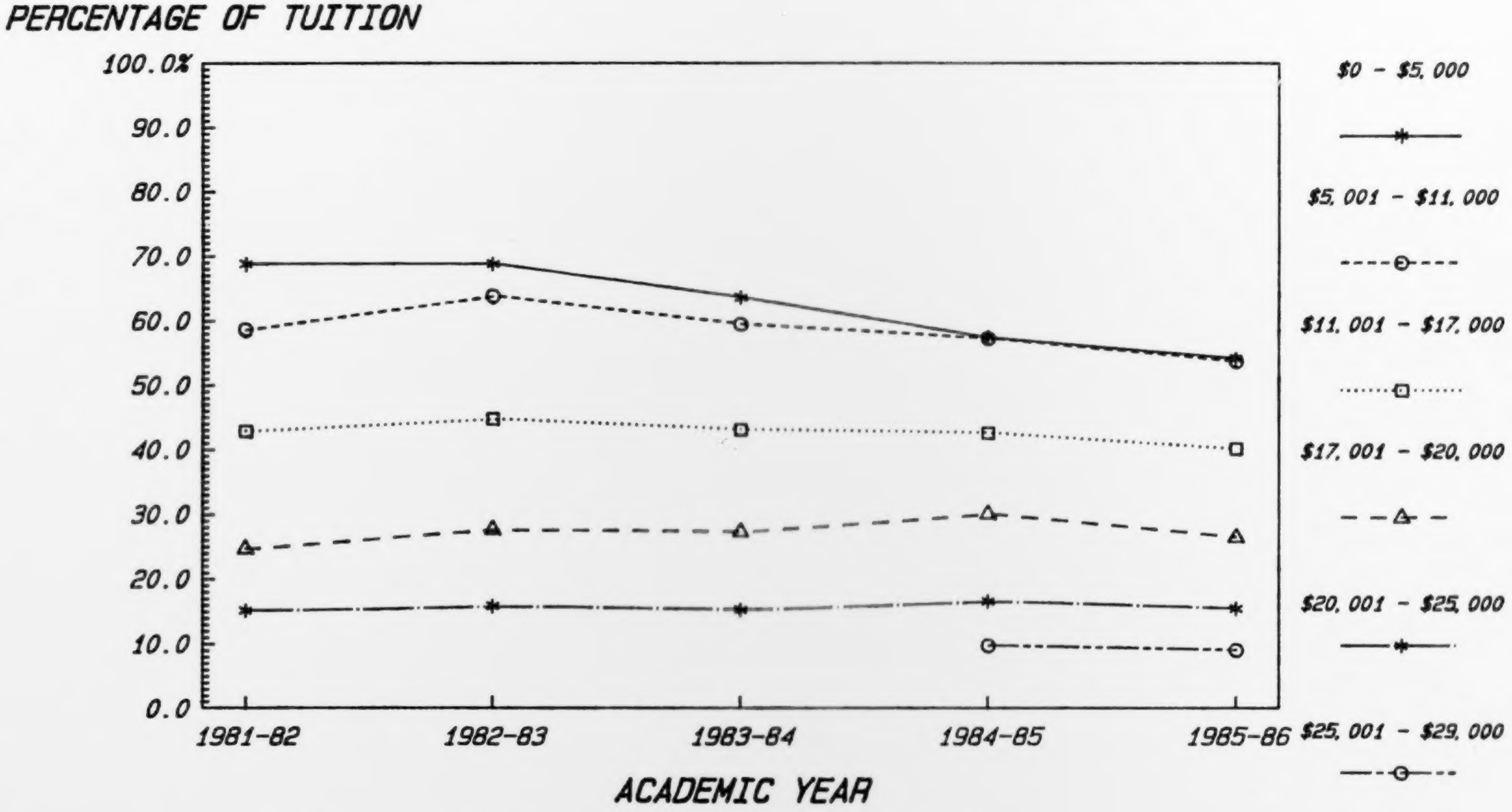
UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION
INDEPENDENT / 1981-82 TO 1985-86



$0 - $5,000	44.1%	40.6%	38.6%	43.8%	40.5%
$5,001 - $11,000	37.9	36.1	35.0	45.0	41.5
$11,001 - $17,000	24.8	24.6	24.8	35.6	32.8
$17,001 - $20,000	12.8	14.3	14.9	26.3	24.2
$20,001 - $25,000	8.5	8.7	8.3	18.1	16.7
$25,001 - $29,000				9.1	8.4

CHART 11

UNDERGRADUATE TAP AWARD AS A PERCENT OF TUITION PROPRIETARY SCHOOLS / 1981-82 TO 1985-86



$0 - $5,000	68.7%	68.7%	63.5%	57.3%	54.0%
$5,001 - $11,000	58.6	63.8	59.4	57.2	53.6
$11,001 - $17,000	42.8	44.7	43.0	42.5	40.0
$17,001 - $20,000	24.6	27.6	27.2	30.0	26.4
$20,001 - $25,000	15.1	15.8	15.2	16.5	15.4
$25,001 - $29,000				9.7	9.0

Student Loans and Higher Education Opportunities: Evidence on Access, Persistence, and Choice of Major*

by

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Student Loans and Higher Education Opportunities: Evidence on Access, Persistence, and Change of Major

Executive Summary

For the past decade or so, many in the higher education community have believed that loans are not effective in fostering opportunities in higher education. This paper uses the High School and Beyond Survey of the high school class of 1980 to analyze the effects of different types of aid packages on student decisions concerning enrollment, persistence and choice of major. The findings show that loans are an effective means for promoting student opportunities in higher education.

Student Loans and Higher Education Opportunities: Evidence on Access, Persistence, and Change of Major

In spite of the explosion in the volume of student loans over the past decade, there has been a lingering belief in the higher education community that loans are not an effective form of student aid for enhancing opportunity in higher education. In the 1980s concerns about loans have grown largely because of changes in the mixture of grants and loans available to students. These concerns have led some to speculate that increased emphasis on loans may decrease the overall effectiveness of student aid in promoting higher education opportunities.

When one turns to analyze these concerns about loans, however, one finds that past research does not necessarily support the commonly-held belief. More specifically, the evidence from research on effects of student aid on student behavior does not support the conclusion that, as a mechanism for promoting higher educational opportunity, loans are less effective than grants. The issue of the effects of loans on higher education opportunities is vitally important to the higher education community because its position on loans not only influences Federal legislation and budgets, but it can also affect national progress on student outcomes.

This paper takes a critical look at the effects of student aid packages on student behavior as a way of exploring the effectiveness of all forms of aid in promoting opportunity in higher education. First we examine the belief that loans are not effective in promoting higher education opportunities and how it has been perpetuated over time in spite of a growing body of thoughtful research to the contrary. Next we present the results of three analyses on the effects of financial aid on student choice behavior using the High School and Beyond (HSB) Survey of the high school class of

1980. The three analyses are of access, persistence, and choice of major. Self-reported information on aid packages and a new supplemental file on aid -- drawn from institutional, state and Federal records -- are used, as appropriate, in these analyses. The three analyses provide new insights into the effectiveness of loans in promoting student outcomes. The final section considers the implications of these findings for the higher education community.

The Belief

While the belief that loans are a less effective form of aid has a long history, many of the current arguments about the effectiveness of loans are based on conclusions drawn by Alexander Astin in Preventing Students From Dropping Out (Astin, 1975), one of the first national studies to take a comprehensive look at the effects of different types of student aid on student persistence. He used data from the Cooperative Institutional Research Program (CIRP) survey of college freshman, supplemented by a four-year, follow-up survey for one class, the college freshman class of 1968. His study concluded that all forms of aid except the GI Bill and student loans were positively associated with persistence.

A careful review of Astin's findings, however, raises questions about his conclusion that loans do not enhance higher educational opportunity in the form of persistence. Astin found that loans during the freshman year had a "consistently negative" impact on persistence for men. But for women loan support during the freshman year had a "positive impact" on persistence at public colleges and a "slight negative effect" on persistence at private colleges. In contrast, his findings on the effects of aid on four-year follow-up were that: "Loans (and particularly state loans) tend to be positively associated with persistence, especially among women" (p. 62).

Since these findings were not consistent with his findings on the effects of loans during the freshman year, he speculated that loans were really not effective, stating:

> In all likelihood, this association [between four-year persistence and loans] is not causal, but rather an artifact. Thus, the longer a student is able to remain in college, the greater the opportunity to secure a loan. That students were much more likely to report loans as a minor source of support on the follow-up than on the freshman questionnaire supports this interpretation (p. 62).

These conclusions supported long-held biases of many in the higher education community that loans are somehow negative, problematic or not effective forms of aid. Recently Frank Newman in Higher Education and the American Resurgence (1985) argued that large loans affect career choices and lower the probability of persistence. And the Carnegie Foundation (1986) suggested that "the shift from humanities to career oriented majors may simply reflect [students'] concern about their indebtedness" (p. 29). Kramer and Van Dusen (1986) have raised the possibility that "calculations about indebtedness have invaded students' strictly academic choices" (p. 17).

This kind of speculation is common in the higher education community, yet there is very little sound evidence to support it. In 1978 Peng and Fetters published a study of the effects of grants and loans on withdrawal of students during their first two years of college using the National Longitudinal Study (NLS) of the high school class of 1972. They found that both types of aid were neutral with respect to persistence and concluded:

> If financial stress leads to higher withdrawal rates, then recipients of scholarships or loans should show a higher persistence rate than non-recipients. This, however, is not supported by the analyses; none of the regression weights for financial aid programs is significant at the .05 level. The data do not support the claim that scholarships but not loans are related to college persistence; there is no support for the argument that financial aid funds should be used solely for scholarships or grants (p. 367).

In retrospect, there is not much evidence to support the conclusion that loans do not have a positive effect on persistence. Prior studies have found loans were at least positively associated with persistence among some students (Astin, 1975; Jensen, 1981; Stampen and Cabrera, 1985; Vorhees, 1985). There is also evidence from other studies of student behavior to suggest that loans could have a positive impact on other student opportunities. In a study using data from NLS, Jackson found that all forms of aid were effective in promoting access (Jackson, 1977, 1978) as well as choice of institution (Jackson, 1977). In a study using CIRP data, Tierney (1980a, 1980b) also found that all forms of aid, including loans, had a positive impact on student selection of institution. In fact he speculated that loans could be a more cost-effective means of financing choice of institution than grants (Tierney, 1980b).

Most prior national studies of the effects of aid on student behavior have one limitation that merits reconsideration. That limitation is that self-reported data on student aid packages were used (Astin, 1975; Jackson, 1977, 1978; Manski and Wise, 1983; Peng and Fetters, 1978; Swartz, 1986; Tierney, 1980a, 1980b). Recently the High School and Beyond (HSB) Survey was updated with a student aid supplemental survey that collected data from actual financial aid records.

Financial Aid and Higher Education Opportunities

To assess more accurately the effects of financial aid on student behavior, it is necessary to control for the possible effects of social, economic, and educational factors on student behavior. There are at least five types of behavior that can be affected by student financial aid:

- Access to college can be affected by whether a student received an aid offer, but not necessarily the amount of aid offered (Jackson, 1977, 1978);

- Choice of institution can be affected by the amount of aid offered by different schools to which a student has been admitted (Jackson, 1977; Tierney, 1980a, 1980b);

- Persistence in school of choice can be affected by different types of aid (Astin, 1975; Jensen, 1983) and possibly the level of aid (Astin, 1975);

- Choice of academic major can theoretically be affected by the level of debt (Newman, 1984), although until recently this assumption had not been tested (St. John, Celebuski, Curtis, and Noell, 1987); and

- Early career choice and earnings on the first job theoretically can be influenced by the level of debt (Newman, 1984) and by the increases in educational attainment that are attributed to student aid.

To assess more accurately the effects of financial aid on student behavior, it is necessary to control for the possible effects of social, economic, and educational factors on student behavior. Based on a review of recent research on the effects of student aid and the literature on educational attainment (St. John, 1987), it is possible to suggest the types of variables that should be considered when studying each of these five areas of student behavior (Exhibit 1). While we are interested in this entire sequence of student behavior, since one ultimate test of the effects of aid is the returns in taxes that can be attributed to increases in attainment that result from student aid (Becker, 1964; Carnegie Commission, 1973; Douglas, 1977; Hansen and Weisbrod, 1969; St. John, 1987; Taubman and Wales, 1972), a number of intermediate steps are necessary before such a complex analysis can be undertaken. We decided to concentrate our initial analyses on the effect of aid on:

- Access, as measured by the marginal effects of the aid offer on the decisions of college applicants to attend college, an area that had not been assessed since the first follow up from NLS data on the class of 1972 (Jackson, 1977, 1978) when we started our research;

- Persistence, because the effects of aid on four-year persistence had not been examined since the graduating class of 1972 (Astin, 1975) and there were many unanswered questions about this topic; and

- Choice of major, because to our knowledge the effects of debt burden on the selection of majors with higher expected returns had never been investigated in a national study.

Research on the effects of aid on choice of institution and educational attainment was not initiated at the same time. Since there was already a fairly sound and consistent set of studies on the effects of student aid on choice of institution (Jackson, 1977; Tierney, 1980a, 1980b), it was not necessary to consider this topic as a top priority. And it was useful to complete analyses of each of the other topics in order to estimate the amount of educational attainment that can be attributed to financial aid.

The analyses of the effects of aid on access, persistence and choice of major presented below use both self-reported data on aid packages and the HSB financial aid supplement. The analysis on access uses self-reported data on financial aid because the supplement did not contain data on aid offers by institutions the student chose not at attend. The analyses of persistence and major choice use the student aid supplement drawn from Federal, state, and institutional records, because it contains information on aid packages for each year. We used multiple regression in all three analyses. Logistic regression was used for the analysis of access and persistence, since both are defined as dichotomous outcomes. In the analysis of the effects of debt on change of major we used ordinary least squares since choice of major was defined as a continuous outcome.

Delta P statistics were calculated for each variable in the logistic regression using a methodology recommended by Peterson (1985). The mathematical equation used to calculate the Delta P is presented in the appendix. The Delta P provides a measure of the change in probability in the

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outcome variable that can be attributed to a one unit change in a given variable in the model. It can be interpreted in a similar way to the parameter estimates from a regression analysis.

Access. Student college enrollment behavior is influenced by a wide range of factors in addition to student financial aid. To estimate the effects of financial aid on student college enrollment, it is first necessary to control for a student's social background, academic ability/achievement, prior school experience and postsecondary plans. Based on a review of the literature on educational attainment, student demand, and student choice, we developed and tested a model to measure the additional effects the receipt of an offer has on a student's college enrollment behavior (St. John and Curtis, 1987).

Two ways have been used to estimate the effects of aid on student decisions to enroll. One strategy involves estimating whether students would receive aid or the amount of aid they would be likely to receive if they applied, then estimating whether the availability of aid made a difference in student decisions, or would have made a difference if the amounts of aid available were different. This approach was used by Manski and Wise (1983) in the study of student choice and has been criticized as producing an artificially high estimate of the effects Pell grants would have on student decisions to attend college (Dresch, 1983). More recently this approach was used to estimate the effects of Federal grant and loan subsidies on college attendance and wealth equalization (Swartz, 1987). The second approach examines the marginal effects of an actual aid offer on college enrollment. This type of analysis focuses on the subpopulation that has applied to college. This approach was used by Jackson (1977, 1978) and was favorably reviewed by Jensen (1983). Jackson (1978) found that applicants were 8.5%

more likely to attend college if they received an aid offer. Our model, which focused on the effects of aid offers on the decisions of college applicants to enroll, was derived from studies by Jackson (1977, 1978). Our analysis focused on college enrollment behavior of members of the high school class of 1980.

Before estimating the effects of aid on access, we estimated the probability that 1980 high school graduates would attend college based on student background, aspirations, achievement and high school track (Exhibit 2). This analysis uses college enrollment during the first year after high school as the dependent variable. College attendance is positively associated with being female, having mothers with high educational attainment, being in an academic track in high school and having high test scores. Students with any of these characteristics are more likely to attend. When low-income students (from families earning less than $12,000 in 1979) were analyzed separately, gender (being female) and mother's education level were not significant.

When other factors in the model were controlled for, income was not a significant factor in college attendance. However, because eligibility for Federal student aid is based on income and the low-income subpopulation often receives special consideration in policy debates on higher education, we decided to include separate analyses of the low-income population (students from families earning less than $12,000) in our analysis of the effects of student aid on access.

Next we examined the effects of background on whether students actually apply for college (Exhibit 3). In this analysis we found that being black in addition to the variables that influence enrollment -- i.e. gender, mother's education, academic program -- was positively associated with applying to college. However being black was not significant for low-income students. These findings raise an important policy question: why are black high school students more likely to apply to college than whites, but no more likely to attend college? Our analysis of the factors affecting college attendance by college applicants provides an initial exploration of this issue. However, this issue undoubtedly needs more serious consideration in future studies.

The estimates of the direct effects of aid offers on enrollment behavior by college applicants used enrollment during the first year after high school as the dependent variable. It also used self-reported information on aid packages collected as part of the first HSB follow up. This was necessary because the first HSB follow up, conducted during the first year after high school, was the only survey with information about college applications, aid applications, and aid offers.

Consistent with prior studies (Jackson, 1977, 1978), we found a student's background, high school experience, and aspirations were significant factors in explaining enrollment behavior of college applicants (See Exhibit 4). Also consistent with this prior research we found that the aid offer had a positive impact on college enrollment. Based on the Delta P statistic for the any-aid variable in this analysis, when other things are held constant, a student who received an aid offer was 9.5 percentage points more likely to enroll. This is similar to the 8.5 percentage points estimated by Jackson (1978) for the high school class of 1972.

Next we examined the effects of different types of aid packages on the college attendance decisions of college applicants. To develop these treatment variables we examined whether students reported being offered aid by their three top choice schools. To construct the aid offer we first examined the aid package offered the student by the school they attended. If they did not attend college, then we used the aid package offered by the highest choice school to offer aid. Since most schools make the admissions decision before aid is awarded to new applicants, we assumed that students with aid offers also had the opportunity to attend. Four types of packages were considered: grant/scholarship only, loan only, work-study only, and a package containing more than one type of aid. We explored further refinements of aid packages, but the percentages of students with most types of aid packages were too small to include separately (Exhibit 5). Almost half of the aid packages offered freshmen contained loans. Only about 1% of college applicants in this analysis were offered packages with grants/scholarships and work-study but no loans.

The analysis of the effects of aid packages offered college applicants (Exhibit 6) shows that all forms of aid have a significant impact on student decisions to attend. The Delta P estimates for each type of aid provide a measure of the change in probability of attendance as a result of receiving each different type of aid. The type of aid package that had the largest effect on college attendance was grants/scholarships only, which increased a student's probability of enrolling in college by 11.6 percentage points controlling for other factors. The probability of attendance was increased by 10.4 percentage points when a loan only was offered. Also receiving an aid package with two or three types of aid increased the probability of enrollment by 10.7 percentage points.

Therefore our conclusion is that all forms of aid have a positive effect on the decisions of college applicants to attend college. There is an important caveat to these findings. These analyses used self-reported data on student aid. Unfortunately, the HSB student aid supplement could not be used in this analysis because it does not contain data on aid packages offered by institutions when students did not enroll.

Persistence: As noted above, although the relationship between financial aid and college persistence has been variously analyzed (Astin, 1975; Jensen, 1983; Peng and Fetters, 1978; Stampen and Cabrera, 1985; and Vorhees, 1985), conclusions about the effects of different types of aid on this outcome have been inconsistent. In this analysis, persistence was defined as a dichotomous outcome. Students were counted as persisters if they were still enrolled or had received their degrees at a fixed point in time. This is similar to the outcome measure used by Astin (1975) and Peng and Fetters (1978).

Our analysis of student persistence examined the effects of aid packages during three distinct periods. We examined whether students who enrolled during their first year after high school (1980-81) were still enrolled during either semester of the second year after high school (1981-82); whether students enrolled during their second year after high school were still enrolled in either semester during the third year after high school or had received a degree by this time (1982-83); and whether students enrolled during the third year after high school were still enrolled during the fourth year after high school or had received a degree (1983-84). Students who received either an associate or bachelor degree were considered college persisters. Defining persistence as enrollment in either semester allowed a student to drop out for up to one semester in a given year and still be counted as a persister.

This approach to analyzing persistence avoids the problem of confounding the effects of loans with the effects of longevity in increasing the likelihood of receiving a loan, which is why Astin (1975) assumed the positive association between loans and persistence was an "artifact." We also limited our analysis of persistence to students who enrolled in college during their first year after high school. Students who enrolled for the first time after their first year were not included because including students who entered later would mean that not all students were on the same enrollment path, possibly confusing the analysis.

The treatment variables for student financial aid were constructed from the HSB financial aid supplement which was collected from actual financial aid records maintained by institutions, state agencies, and the Federal government. To construct our treatment variables we first examined the types of packages students received. Five types of packages were included in our analysis since a reasonable number of students received these packages. An extremely small number of students in the file received work-study only or loans and work-study. Our analysis shows that the types of aid students received did change over time (Exhibit 7). During their first year in college, most students who received aid received either grants only (20% of those who attended), loans only (10%) or grants and loans (11%). A smaller percentage received grants and work-study (5%) or loans, grants and work-study (6%). Less than 1% received either work-study only or loans and work-study; therefore these categories of aid recipients were not considered in our analysis of aid packages. The total percentage of enrolled students with loans did increase slightly during the three years, due in part to an increase in the percentage of students receiving grants and loans. The composition of packages also changes.

Our analysis of persistence also presents separate analyses of low-income and non low-income students. In this analysis, students from families earning less than $12,000 in 1979 were considered low-income. The same types of aid packages were considered in the analysis of non low-income and low-income students as were used for the analysis of all students, with one exception. Loans as the only source of student aid was excluded from the analysis of low-income students because less than 1% of the low-income students received this type of package. This was expected since there is no reason why low-income students would not receive grants as well as loans because students from families earning less than $12,000 in 1979 should, at a minimum, have received Pell grants.

The model used for the analysis of persistence was derived from a review of the persistence literature (St. John, Salganik, Curtis, and Noell, 1987). The factors included in the model were:

- Social background, as measured by:
  - Ethnicity (Black and Hispanic),
  - Gender,
  - Family Income;
- Educational background, as measured by:
  - Perceived track in high school (academic or vocational),
  - Achievement test score;
- Aspirations, as measured by postsecondary plans;
- Academic integration, as measured by college grades;
- College characteristics, as measured by the type (four-year) and control (private) of the college the student entered the first year after high school;
- Full-time attendance in the year aid was received;
- Student financial aid (either any type of aid or the type of aid package).

The effects of factors other than student aid are described elsewhere (St. John, Salganik, Curtis and Noell, 1987) and will not be discussed here. Our focus here is on the effects of student aid. Below we consider the effects of any type of aid and of different aid packages on student persistence during the three periods.

Student aid was positively associated with persistence from the first to the second year of college for all students and non low-income students (Exhibit 8). Holding other variables in the model constant, the receipt of aid increased the probability of persistence from the first to second year by 3.4 percentage points. When other factors in the model were controlled for, aid was neutral for low-income students.

When the effects of aid packages were considered (Exhibit 9), we found grants only and loans only had a positive association with persistence for all students and non low-income students. When other variables in the model were held constant, the probability of non low-income student persisting from their first to second year in college was increased by 6.3% when they received a loan only and 6.4% when they received a grant only. Packages with all three types of aid also had a positive association with persistence for all students. When other variables in the model were controlled for, the probability of students persisting from their first to second year in college increased by 7.8 percentage points when they received all three types of aid during their first year. For low-income students none of the packages had a significant association with persistence from the first to the second year of college.

Financial aid also had a positive association with persistence between the second and third years in college or degree completion. When any type of aid package was considered (Exhibit 10) financial aid had a positive association with persistence for all students, low-income students and non low-income students. When other variables in the model were controlled for, the probability that students will persist from the second to third year increased by 3.8 percentage points when they receive financial aid; the probability of low-income students persisting increased by 2.9 percentage points.

When the types of aid packages were considered (Exhibit 11), loans only, grants only, grants and loans, and grants and work were all positively associated with persistence between the second and third year of college for all students. The probability of students persisting increased by 4.3 percentage points if they received loans only, by 5.9 percentage points when they received grants only, and 6.0 percentage points when they received grants and loans. For low-income students, packages with grants and work were significantly associated with persistence. When other variables in the model are controlled for, the probability of low-income students persisting from the second to third year in college (or to degree completion) increased by 19.6 percentage points when they received a package with grant and work aid. Packages with grants or with grants and loans were significantly associated with persistence between the second and third years in college for non low-income students.

When the effects of receipt of any type of aid on persistence between the third and fourth years was considered (Exhibit 12), aid was not found to be significant. However, when the types of aid packages were considered separately (Exhibit 13), loans only were significantly associated with persistence both for all students and for non low-income students, and grants and work had a significant association for all students and low-income students. When other variables in the model are controlled for, the probability of students persisting from the third to the fourth year in college increased by 6.0 percentage points if they received loans as the only source of aid, and by 8.1 percentage points if they received grants and work.

In summary, different types of financial aid packages appeared differentially effective at different points in the college experience. When all students are considered, receiving any type of aid had a positive impact on persistence during the first two periods studied. When packages were considered for all students, loans as the only source of aid had a positive impact on persistence for all three periods. Grants as the only form of aid had a positive impact on the first two periods. Packages with grants, loans, and work and with grants and loans had a positive impact on persistence from the first to second year in college, while packages with grants and loans and packages with grants and work had a positive impact on persistence between the second and third years in college, and packages with grants and work had a positive impact on persistence between the third and fourth years of college.

Loans had different types of effects on persistence for low-income and non low-income students. In the transitions between the second and third years and the third and fourth years, only packages with grants and work had a positive impact on persistence for low-income students. In contrast, for non low-income students, loans had a positive impact on persistence for two of the three periods studied.

Our conclusion from these analyses is that loans as well as grants and work are effective in promoting persistence. When the possible interaction between loans and persistence is controlled for, loans appear to have a positive impact on persistence. At the very least, there should be little doubt that future studies should include loans as well as grants when examining the effects of student aid on persistence. However, from this analysis it is not clear why some types of aid packages are significant one year and not the next. This issue should be explored further in future studies.

Choice of Major: The controversy about the effects of debt on choice of major has grown during the past year. The Carnegie Foundation (1986) argued that debt causes students to choose career oriented majors because of their higher potential earnings. Therefore the effects of cumulative debt on choice of major should be considered an important policy issue.

To develop an estimate of the expected returns for different majors we analyzed the 1979 earnings for students from the high school class of 1972 with bachelors degrees using the most recent follow-up to NLS. We assumed that these earnings represented a reasonable approximation of the type of information students in the high school class of 1980 would have about the expected returns of different majors. It is possible that 1979 is not soon enough after college to determine the true relative value of different degrees. However this type of information on earnings of recent graduates is the type of information students are likely to get from placement officers about earnings of recent graduates. We used this information on earnings to assign values representing expected returns to both the high school major choice (an independent variable) and final choice of major (the dependent variable). Therefore the analysis focuses on the factors that influence students to choose majors with higher or lower expected returns than their original major choice.

The 1979 earnings of different majors for four-year college graduates in the high school class of 1972 were used to rank majors in this analysis (Exhibit 14). Our descriptive analysis (Exhibit 14) showed that the amount of debt did vary by major, but it is not closely associated with level of expected returns. Although the descriptive analysis raises a question about whether debt level influences choice of major, a regression analysis was done to control for possible confounding factors.

The basic model used for the analysis of debt burden was similar to the model we used for persistence, with a few exceptions. High school grades were used instead of achievement test scores. We included the high school major choice, ranked by expected return in the model to control for students' pre-established career choices. For example students planning on entering high-earning professions may be more likely to take on higher debt, which suggests that the causal path runs from career choice to borrowing and not the other way around. We also included years of higher education in the model to control for effectiveness of persistence on debt burden. The treatment variable for student aid was cumulative debt. Our outcome measure was final choice of major, measured in terms of expected returns.

Our analysis provided interesting insights into the factors that influence students to choose majors with higher expected returns. Having a high income, being male, having good grades in high school, and originally choosing a major with high expected returns are all significantly and positively associated with the final choice of a major with high expected returns (Exhibit 15). Since high school major choice had the strongest effect on the final outcome, it is possible that students borrow based on earlier career choices (i.e. students considering high earning careers borrow more) and not that they adjust their career choice because of borrowing. Mother's education, high achievement test scores, and attending a private college had a negative association and therefore could influence students to choose majors with lower expected returns. We speculate that these factors were related to intrinsic motivations. Cumulative debt burden did not have an impact on student decisions to select majors with higher expected returns.

Although our analysis did not find that debt is related to choice of major, it is still possible that debt could influence early career choices, and we have plans to look at that issue as well. But, in short, there is no evidence in this analysis to suggest that debt is now having a negative effect on higher education opportunities.

Conclusions

There has long been a belief in the higher education community that loans are not effective in enhancing opportunities in higher education. Thus the increased emphasis on loans in the 1980s has led some in the student aid community to express concern that opportunities in higher education were declining because of changes in student aid policy. This study examined the belief that loans are not an effective form of aid in enhancing student opportunities. Our analysis suggests that:

- Grants/scholarships, loans, and work are effective in promoting access to higher education.
- Loans as well as grants/scholarships and work study are effective forms of aid in promoting student persistence in college.
- Cumulative debt does not have an effect on student decisions to select majors with higher expected returns.

Our primary conclusions are that loans are an effective form of aid and that the mixture of loans and grants available for student aid through the mid-1980s was effective in enhancing higher education opportunities. This does not necessarily suggest that an increased emphasis on loans would be more effective than the mix that was evident in the early 1980s. Since aid is theoretically packaged to promote access and choice, observations on the actual mix of aid do not indicate what would happen if this mix changed. And although our analysis cannot show that higher levels of student debt will not result in negative consequences, we can conclude that the level of loan debt that was present in the early 1980s did not influence students to choose majors with higher potential earnings. It would seem prudent, of course, to continue to monitor student debt and to assess whether its positive effects continue to outweigh possible negative effects.

In closing, it can be said that it really is not surprising that loans are an effective form of student aid. The fact is there are many logical reasons why loans can have a positive impact on student choice. After all, it is a source of money to pay for college. Further, the act of taking on debt may even cause students to act more responsibly when making educational decisions. If this is the case, then it may be time to discard the belief that loans are not an effective form of student aid.

Exhibit 1

A Dynamic Model for Assessing the Effects of Student Aid on Equal Opportunity

Factors	Background	Sequence of Student Choices				First Job
		Access/ Attendance	Choice of College	Persistence	Choice of Major	
Old Factors	N.A.	1-3	1-4	1-4	1-4,12-15	1-4, 13-20
New Factors	1. Socioeconomic Background	4. Educational Aspirations	8. Characteristics of Choice Set	12. Characteristics of College	16. Original Choice of Major	21. Occupational Status
	2. Ability	5. Application/ Acceptance	9. Costs of Choice Set	13. Social Integration	17. Occupational Aspirations	22. Educational Attainment
	3. High School Experience	6. Financial Aid Offered	10. Aid Offered by Choice Set	14. Academic Integration	18. Potential Earnings of Other Majors	23. Years of Full-Time Employment
		7. Attendance	11. Choice: Pub./Priv.	15. Financial Aid o Type o Amount o History	19. Cumulative Loans	24. Earnings
					20. Final Choice of Major	
Research Tradition	Base: Sociological Attainment Studies	Add: Policy Emphasis	Add: Economic Student Demand Analysis	Add: Student Develop. Research Models	Add: Emphasis on Career Choice	Add: Emphasis on Occupational Attainment

Exhibit 2

The Effects of Background Characteristics on College Attendance

	Logistic Regression Delta P (1)		
	All Students	Low-Income	Non Low-Income
Variables			
Black	.009	-.011	.001
Hispanic	-.012	-.061	-.001**
Sex (Male=1)	-.074**	-.051	-.077**
Family Income	.001	NA	NA
Mother's Education	.016**	-.004	.019**
Academic Program	.145**	.101**	.148**
Vocational Program	-.008	-.056	.003
Postsecondary Plans	.176**	.190**	.172**
Achievement Test Score	.009**	.006**	.010**
Model Chi Square	2705.57	548.18	2103.83
N	7467	1765	5702
Percent Attending (Baseline P)	58%	50%	60%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level
** Beta significant at the .01 level

Source: High School and Beyond Base Survey and Follow Ups for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 3

The Effects of Background Characteristics on Applications to College

	Logistic Regression Delta P (1)		
Variables	All Students	Low-Income	Non Low-Income
Black	.076**	.043	.085**
Hispanic	.011	.007	.001
Sex (Male=1)	-.065**	-.020	-.075**
Family Income	-.077	NA	NA
Mother's Education	.014**	-.018	.018**
Academic Program	.008**	.105**	.146**
Vocational Program	-.026	-.044	-.015
Postsecondary Plans	.157**	.200**	.149**
Achievement Test Score	.008**	.003	.009**
Model Chi Square	2811.97	623.71	2173.01
N	7178	1685	5493
Percent Applying (Baseline P)	70%	64%	71%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level
** Beta significant at the .01 level

Source: High School and Beyond Base Survey and Follow Ups for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 4

The Effects of Background Characteristics and Financial Aid Offer on College Enrollment by College Applicants

	Logistic Regression Delta P (1)		
Variables	All Students	Low-Income	Non Low-Income
Black	-.083**	-.093**	-.112**
Hispanic	-.021	-.097*	-.000
Sex	.001	-.014	.005
Family Income	.020**	NA	NA
Mother's Education	.007**	-.007	.009**
Academic Program	.032**	.056	.031**
Vocational Program	.006	-.062	.021
Postsecondary Plans	.039**	.020	.043**
Achievement Test Score	.002	.002	.002
Aid Offer	.095**	.135**	.077**
Model Chi Square	471.99	144.11	325.91
N	4969	1070	3899
Percent Attending Who Applied (Baseline P)	86%	82%	88%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level
** Beta significant at the .01 level

Source: High School and Beyond Base Survey and Follow Ups for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 5

Types of Aid Packages Offered to Students Applying to College in the Fall of 1980

Type of Package Offered	Percent
None	62%
Grant	17%
Loan	11%
Work	2%
Loan and grant	2%
Loan and work	1%
Grant and work	1%
Loan, grant and work	4%
Total N	5972

Source: High School Beyond Base Survey and Follow Ups for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 6

The Effects of Background Characteristics and Different Financial Aid Packages on College Enrollment by College Applicants

	Logistic Regression Delta P (1)		
Variables	All Students	Low-Income	Non Low-Income
Black	-.075**	-.053	-.115**
Hispanic	-.026	-.088*	.000
Sex	.005	.000	.007
Family Income	.023**	NA	NA
Mother's Education	.007*	.012	.008**
Academic Program	.029*	.070*	.028*
Vocational Program	.008	.005	.017
Postsecondary Plans	.038**	.004	.043**
Achievement Test Score	.011	.002	.001
Grant/Scholarship	.116**	.152**	.106**
Loan	.104**	.159**	.084**
Work Study	.128**	.190**	.105
Aid Combinations	.107**	.125**	.099**
Model Chi Square	413.56	106.36	300.33
N	4185	785	3400
Percent Attending (Baseline P)	86%	81%	87%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level
** Beta significant at the .01 level

Source: High School and Beyond Base Survey and Follow Ups for the High School Class of 1980. Analysis by Pelavin Associates, Inc.

Exhibit 7

Type of Aid Package
Received by Students
Attending College by Year,
1980-81 to 1983-84

Type of Package	1980-81	1981-82	1982-83	1983-84
	Year			
None	47%	43%	48%	43%
Grant only	20%	17%	15%	14%
Loan only	10%	14%	10%	10%
Work Study only	(.2%)	(.3%)	(.3%)	(.4%)
Loan and Grant	11%	13%	13%	17%
Loan and Work Study	(.3%)	(.2%)	(.2%)	(.3%)
Grant and Work Study	5%	6%	5%	4%
Loan, Grant and Work Study	6%	7%	9%	12%
Total N	5,567	3,948	3,019	2,230

Source: High School and Beyond Base Survey, Follow ups, and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 8

The Effects of Any Type of Aid on First Year to Second Year Persistence in College

	Logistic Regression Delta P (1)		
Variables	All Students	Low-Income	Non Low-Income
Black	-.006	.042	-.033
Hispanic	.045	.042	.044
Sex (1 = Male)	.024*	.043	.022
Family Income	.008*	NA	NA
Mother's Education	.002	.006	.002
Academic Track	.051**	.087**	.046**
Vocational Track	-.008	-.060	-.001
Postsecondary Plans	.043**	.053**	.042**
Achievement Test Score	.002**	.002	.002**
Full Time (a)	.060**	.010	.063**
College Grades (b)	.028**	.050**	.024**
Four-Year College (c)	.038**	.077*	.032*
Private College (b)	.040*	-.024	.046*
Any Aid (a)	.034**	.013	.031**
Model Chi Square	502.71	126.57	382.60
N	4003	759	3244
Percentage Persisting (Baseline P)	83.8%	80.5%	86.1%

* Beta significant at the .05 level.
** Beta significant at the .01 level.

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

(a) Variable from the first year after high school.
(b) Variable from the HSB first follow up, which was two years after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Base Survey, Follow ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 9

The Effects of Different Aid Packages on First to Second Year Persistence in College

Logistic Regression
Delta P (1)

Variables	All Students	Low-Income	Non Low-Income
Black	-.016	.021	-.039
Hispanic	.053*	.045	.054
Sex (1 = Male)	.022	.056	.018
Family Income	.007	NA	NA
Mother's Education	.004**	.006	.005
Academic Track	.059**	.090**	.054**
Vocational Track	.002	-.044	.011
Postsecondary Plans	.056**	.062**	.055**
Achievement Test	.003**	.004	.003**
Full Time (a)	.064	.017	.067**
College Grades (b)	.023**	.038**	.020**
Four-Year College (c)	.023	.053	.020
Private College (c)	.029	-.022	.033
Loan Only (a)	.059**	NA	.063**
Grant Only (a)	.062**	.041	.064**
Grant and Loan (a)	.039*	.051	.031
Grant and Work (a)	.059	.104	.033
Grant, Loan, and Work (a)	.078**	.103	.065
Model Chi Square	608.06	132.68	483.46
N	4227	800	3427
Pct. Persisting (Baseline P)	83.3%	79.1%	84.3%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* The Beta for this variable is significant at the .05 level
** The Beta for this variable is significant at the .01 level

(a) Variable for the first year after high school.
(b) Variable from the first HSB follow up which was administered the second year after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Base Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates.

Exhibit 10

The Effects of Any Type of Aid on Second to Third Year Persistence or Degree Completion

	Logistic Regression Delta P (1)		
	All	Low-Income	Non Low-Income
Variables			
Black	-.008	.033	-.038
Hispanic	.038	.062	.027
Sex (Male = 1)	.011	-.014	.016
Family Income	.014**	NA	NA
Mother's Education	.007*	.002	.008**
Academic Track	.018	-.030	.027
Vocational Track	-.123**	-.004	-.125**
Postsecondary Plans	.050**	.048**	.049**
Achievement Test	.001	.004	.000
Full Time (a)	.038	.038	.038
College Grades (b)	.022**	.041**	.017**
Four-Year College (c)	.056**	.105**	.050**
Private College (c)	-.010	-.007	-.009
Any Aid (a)	.038**	.068*	.029*
Model Chi Square	380.84	72.19	316.73
N	2890	528	2362
Percent Persisting (Baseline P)	86.5	81.6	87.6%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level.
** Beta significant at the .01 level.

(a) Variable for second year of college
(b) Variable from the first HSB follow up, which was administered during the second year after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.
Analysis by Pelavin Associates, Inc.

Exhibit 11

The Effects of Aid Packages on Second to Third Year Persistence or Degree Completion

Variables	Logistic Regression Delta P (1) All Students	 Low-Income	 Non Low-Income
Black	-.003	.009	-.014
Hispanic	.051	.120	.025
Sex (Male = 1)	.006	-.002	.011
Family Income	.017**	NA	NA
Mother's Education	.007*	.006	.008*
Academic Track	.035*	-.053	.046**
Vocational Track	-.096**	-.083	-.090**
Postsecondary Plans	.061**	.066**	.060**
Achievement Test Score	.003*	.007*	.002
Full Time (a)	.073**	.040	.076**
College Grades (b)	.028**	.033*	.026**
Four-Year College (c)	.042**	.075	.039*
Private College (c)	.002.	.004	.003
Loan Only (a)	.043*	.000	.036
Grant Only (a)	.059**	.075	.053*
Grant and Loan (a)	.060*	.057	.057*
Grant and Work (a)	.093**	.196**	.024
All Types (a)	.065	.131	.045
Model Chi Square	559.31	99.52	457.40
N	3516	632	2884
Percent Persisting (Baseline P)	82.5%	76.9%	83.7%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level.
** Beta significant at the .01 level.

(a) Variable for second year of college.
(b) Variable from the first HSB follow up which was administered during the second year after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates.

Exhibit 12

The Effects of Any Type of Aid
on Third to Fourth Year
Persistence or Degree Completion

	Logistic Regression Delta P (1)		
	All Students	Low-Income	Non Low-Income
Variables			
Black	-.012	-.041	-.031
Hispanic	-.010	-.090	.003
Sex (Male = 1)	.011	.069**	.003*
Family Income	.009**	NA	NA
Mother's Education	.007**	.027**	.007**
Academic Track	.029**	.014	.031**
Vocational Track	-.027	.002	-.019
Postsecondary Plans	.015**	.013**	.013**
Achievement Test	-.003**	-.004	-.002**
Full Time (a)	.032**	-.458	.034**
College Grades (b)	.014**	.044**	.012**
Four-Year College (c)	-.001	.051	-.009
Private College (c)	-.017	-.090	-.027*
Any Aid (a)	-.006	-.038	-.014
Model Chi Square	108.10	29.30	102.27
N	2044	354	1690
Percent Persisting (Baseline P)	94.0%	90.1%	94.8%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level.
** Beta significant at the .01 level.

(a) Variable for the third year after high school.
(b) Variable from the first HSB follow up which was administered the second year after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Base Survey, Follow Up and Student Aid Supplement for the High School Class of 1980.
Analysis by Pelavin Associates, Inc.

Exhibit 13
The Effects of Financial Aid Packages on Third to Fourth Year Persistence or Degree Completion

	Logistic Regression Delta P (1)		
Variables	All Students	Low-Income	Non Low-Income
Black	.005	-.024	-.007
Hispanic	.032	-.026	.030
Sex (Male = 1)	.015	.028	.017
Family Income	.011**	NA	NA
Mother's Education	.009**	.034**	.008**
Academic Track	.027*	.041	.028*
Vocational Track	-.010	.045	-.019
Postsecondary Plans	.025**	.018	.024**
Achievement Test Score	.001	-.003	.001
Full Time (a)	.050**	-.015	.051**
College Grades (b)	.012	.043**	.011*
Four-Year College (c)	.025*	.098**	.017
Private College (c)	-.015	-.083	-.008
Loan Only (a)	.060**	NA	.054*
Grant Only (a)	.014	-.001	-.002
Grant and Loan (a)	.010	-.019	.008
Grant and Work (a)	.081**	.103	.077
Grant, Loan, and Work	.051	.016	.062
Model Chi Square	250.09	42.47	214.31
N	2826	474	2352
Pct. Persisting (Baseline P)	90.4%	86.1%	91.3%

(1) Delta P is the effect of a unit change in the independent variable on the dependent variable.

* Beta significant at the .05 level.
** Beta significant at the .01 level.

(a) Variable for the third year after high school.
(b) Variable from the first HSB follow up which was administered two years after high school.
(c) Variable for the first college attended.

Source: High School and Beyond Base Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

Exhibit 14

Expected Earnings and Cumulative Debt by Final Major for Four-Year College Persisters for the High School Class of 1980

Final Major	1979 Earnings for College Graduates from the High School Class of 1972	Major Rank	Average Debt*	Rank of Debt
Agriculture/ Home Economics	$17,028	6	$4988	11
Business	$19,228	3	$4567	14
Office/Clerical	$13,728	13	$5496	7
Computer Technology	$19,147	4	$5694	5
Education	$16,129	7	$4775	13
Engineering	$23,431	1	$5902	4
Mechanical Engineering	$19,450	2	$5222	8
Humanities	$14,201	12	$5134	10
Health Services	$18,583	5	$5502	6
Public Services	$15,610	8	$4855	12
Physical Science/Math	$15,054	10	$6432	1
Social Science	$15,338	9	$6093	3
Biological Science	$14,766	11	$5182	9
Professional Programs	$11,775	14	$6340	2

* Average debt for students who borrowed during their four years in college

Source: High School and Beyond Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates

Exhibit 15
The Effects of Cumulative Debt on Final Choice of Major for College Persisters Using Student Aid Supplement

Variable	Standardized Estimate
Black	.026
Hispanic	.036
Sex	.145**
Family Income	.056**
Mother's Education	-.064**
High School Grades	.093**
Academic Program	-.047*
Vocational Program	-.042
High School Major Choice	.379**
College Grades	-.032
Private College	-.067**
Years in College	.077**
Total Debt	.024
N	1859
R Square	.208

* Significant at .05 level
** Significant at .01 level

Source: HSB Base Year Survey, Follow Ups and Student Aid Supplement for the High School Class of 1980.

Analysis by Pelavin Associates, Inc.

APPENDIX

NOTE ON DELTA-P IN LOGIT TABLES

Delta-p $= \exp(L_1)/[1+\exp(L_1)] - \exp(L_0)/[1+\exp(L_0)]$

where:

$L_0 = \mathrm{Ln}\ p/(1-p)$ (p="baseline p" in table)

and

$L_1 = L_0 + \mathrm{Beta}$

Source: Peterson, Trond. "A Comment on Presenting Results from Lotis and Probit Models." American Sociological Review, 1985, 50, 130-131.

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Manageability of Student Debt: Before and After Reauthorization

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Running Head: Student Loan Burden
6/22/87

Student Loan Burden

Abstract

This paper analyzes California student debt burdens between 1978 and 1985. We find that debt levels are not cost driven and that relatively few college full time seniors have debt that result in unmanageable repayment levels. Expansion of student debt since the late 1970s is largely the consequence of the 1978 Middle Income Student Assistance Act. The 1986 Reauthorization, while easing the repayment burden, will do relatively little to curb student borrowing.

Introduction

The well known contradictions of public policy become most apparent when because of criticisms a program is modified and then, instead of improving, it works less effectively than before. Recently, we began to wonder if student loan programs are yet another example of this depressing phenomenon, as illustrated by the major modifications made in loan programs during the 1986 reauthorization of the Higher Education Act of 1965.

For some time but especially since the early 1980s we have witnessed an outpouring of reports, commentaries, and criticisms of student loan programs. Student aid experts decry the increased reliance of students on loans (Miller, 1985; Marchese, 1985). Educational leaders worry about excessive borrowing by students and their future ability to repay (Newman, 1985; Marchese, 1986). Other observers voice apprehension about default rates (Hauptman, 1983; Cross, 1984). Even philosophers now offer their wisdom on student financial aid policy (Gutmann, 1987).

These concerns have been heightened recently with the slower growth of federal Pell grant funds, rising tuition charges, and a seeming reluctance on the part of those who provide the traditional sources of financial support, especially governments to augment the resources devoted to higher education (Hansen and Stampen, 1987). Moreover, with no significant influx of new funds in sight, it is difficult to visualize a world in which student borrowing will not continue to increase.

How Serious is the Debt Problem?

Research on the impact of student loans and accumulated debt offers conflicting findings. Miller (1985) reports that in 1981-82, 20 percent of the costs of a dependent's undergraduate education was paid for with student loans; this percentage rose to 23 percent by 1983-84. In 1979-80, 24 percent of dependent students enrolled in private colleges used loans to finance college expenses; by 1983-84, 53 percent of independent private students assumed loans. Miller also suggests that low income students are taking out more loans than ever before. According to Davis (1985) the average total debt between 1974 and 1983 for undergraduates increased 64 percent with a 30 percent growth between 1981 and 1984. A recent study by Davis of graduate student borrowing in Pennsylvania indicates that average borrowing levels are rising at an "alarming rate;" between 1974 and 1983 the average GSL debt accumulated during their undergraduate years in Pennsylvania nearly doubled from $3,600 to $7,000. While enrollments remained relatively stable, the number of borrowers in this period doubled (Davis, 1986).

Others present evidence that the loan problem is exaggerated. Hansen and Rhodes (1986) find that no more than 4 to 5 percent of student borrowers in California have debts so large as to require unmanageable repayments. Boyd (1985) finds that "loans do not negatively impact on such consumer decisions as purchasing a home or a car," notwithstanding speculation by Irwin of Friends of Higher Education, that students will be reluctant to purchase automobiles, homes, and other major consumer items (Miller, 1985). Martin (1985) agrees with Boyd's findings that student loans do not have adverse effect on borrowers and that students loans do not have any particular impact on the day to day decisions of borrowers.

One reason for some of the confusion is the absence of sufficient data on student debt and the analysis of these data to determine the dimensions of the problem. Indeed, in 1985, the College Scholarship Service convened a meeting of 50 or so experts in student financial aid to discuss the student debt issue. No consensus was reached by those in attendance about the "problem" or whether there was a problem; opinions ranged from alarming to undecided (Hansen 1986). This report identified the shortcomings that must be overcome in the present data so that a more informed assessment can be made about the increase in student borrowing. At the same time the tone of the report implies that there is a problem or perhaps a number of problems that need clarification.

Increases in Student Debt, 1982-83 to 1985-86

How fast is student debt rising? We can examine changes in debt by drawing upon data collected at three year intervals on expenditures and resources of students enrolled in California's institutions of higher education. The California sample is large, the survey is well established, and the data are highly reliable. Some experts may question the usefulness of California data because tuition in the public institutions is low and therefore has little impact on the total educational costs. Nonetheless, living expenses in California are generally higher than average and offset the low tuition charges characteristic of public institutions in California. We further control for tuition levels by using debt-cost ratios which allow us to compare debt levels relative to cost. Our analysis here is confined to full time students attending California four-year public and private institutions because not only are these students representative of the majority of higher education enrollees, but such students are more likely to have borrowed to complete college and therefore. Data for California show that in 1985 dependent college seniors who borrow had accumulated $5,500 in debts, as contrasted to $6,000 for independent students. These totals include borrowing accumulated during their first three years of school plus the borrowing they intended to do or had already done in their fourth year.

Debt levels vary among different types of students. For example, California dependent student attending public four-year institutions have average debt levels of $4,400 as compared to $8,000 for those attending private institutions. Independent students generally have larger debts, averaging $5,500 for those attending public institutions and $8,000 for those attending private institutions. These figures compare with 1985-86 national debt totals for seniors of $6,685 for students attending public institutions and $8,950 for those attending private institutions (Hansen, J. 1986).

Student indebtedness obviously grew from 1982-83 to 1985-86. The annual rates of increase have been rather modest, however, ranging from 3 to 6 percent, as shown in column 1 of the upper panel of Table 2. These increases were slightly greater for independent students, 6 percent, as contrasted to 3 percent for dependent students, and they were generally larger for students attending private rather than public institutions. Private student debt increased 4 to 5 percent annually, while public student debt increased about 2 to 4 percent. This range of increases is generally in line with increases in the price level and in other similar indicators.

A common presumption of student debt critics is that rising costs of college attendance have forced students to increase their borrowing. When we examine changes in tuition charges between 1982 and 1985, shown in Table 2 column 2, we find tuition increasing at annual rates of up to 11 percent at the state colleges, while increasing 7 percent at private institutions, and only about 1 percent a year at the University of California. In general, these increases exceed the rate of increase in student debt. Despite the increase in tuition, the rate of increase in borrowing is well under the rate of increase in tuition.

This conclusion is hardly surprising because tuition represents such a small fraction of total educational costs in public institutions in California. When we calculate average costs per student as reported by students in the California SEARS survey, we find that on average total student debt increased by about as much as total educational costs (see column 3); the increases were somewhat greater for independent than dependent students, and for students attending private as compared to public institutions. We conclude that while there is a clear link between increases in average educational costs and the debt levels of college seniors, no clear relation exists between tuition and debt increases.

To provide a further test of this relationship, we show similar data for the 1979-80 to 1982-83 period in the lower panel of Table 2. Most surprising is the much faster rate of increase in total debt, with increases ranging from 15 to 20 percent per year (column 1). Tuition rates did increase quite substantially (column 2). Yet educational expenditures reported by students rose much more slowly, making it difficult to establish any connection between expenditure increase and debt levels. As shown in column 3, the percentage increases in educational expenditures averaged 5 percent for both dependent and independent students; the increases were only slightly larger for students attending private four-year schools. This evidence suggests that the large increases in debt between 1979-80 and 1982-83 were occurring for reasons other than the modest increases in tuition and educational costs.

Additional evidence comes from an examination of the ratios of total debt to total educational expenditures which are presented in Table 3. The ratios for 1979-80 are fairly small, rose substantially from 1979-80 to 1982-83, and then dropped a bit from 1982-83 to 1985-86. If anything, the evidence suggests that the debt problem is less serious in 1985-86 than in 1982-83.

Extent of Excessive Debt

What accounts for the difference between these two periods? We have two possible answers. The one that comes most readily to mind is the effect of the Middle Income Student Assistance Act of 1978 which removed the $25,000 family income limit in determining eligibility for Guaranteed Student Loans. This opened up borrowing to all students, and many took advantage of it, especially when interest rates soared as it became profitable to borrow, invest the money, and repay immediately after graduation. This opportunity remained in effect until 1982, but was rescinded by the Omnibus Budget Reconciliation Act of 1981. That legislation required students with family incomes of $30,000 or more demonstrate financial need to obtain GSLs.

It seems quite clear that the opportunity to borrow without the usual income restrictions, beginning in 1979 and continuing until 1982, encouraged many students to borrow who could not have done so otherwise; this led to the rapid increase in outstanding debt from 1978 to 1981.

In the same period however, the State of California greatly expanded its own student loan program which had begun in 1979-80. At present we do not have enough information on this program to enable us to speculate about the relative importance of these two factors.[1] Whatever we eventually conclude on this point, it seems clear that student borrowing became much more prevalent and accepted as a method of financing college attendance.

Manageability of 1985-86 Debt Levels

We next inquire about the proportions of all borrowers and of all students whose debts are so large as to be unmanageable, meaning that their future earnings will not be adequate for them to meet their required repayments. We use as our starting point the matrix of loan maximums, taken from an earlier paper and shown here as Table 4, that are associated with different starting salary levels and repayment rates out of current salary. We then compare the 1985-86 distribution of student debt levels given in Table 5 with the maximum in Table 4 to establish the percentages of borrowers with unmanageable debt levels.

If we assume the most conservative position, implied by the lowest starting salary ($16,000) and lowest repayment rate out of current salary (10 percent), the maximum level of student indebtedness that is manageable is approximately $11,000. By this standard about 9 percent of all dependent borrowers and 10 percent of all independent borrowers have debts that are too large as shown in Table 6. Inasmuch as only about half of all students borrow, we find that the proportions of all students who have serious debt problems is 4 percent for dependent and 5 percent for independent students.[2]

If we assume a starting salary of $20,000 which seems more realistic (for California, at least) and retain the same minimum repayment rate, the maximum loan which is manageable rises to $13,681. By this standard approximately 4 percent of dependent borrowers and 5 percent of independent borrowers have debts that are too large. As a percentage of all students, regardless of whether they have of debt, the proportions of all students with serious debt problems drop to 2 and 3 percent respectively. Readers can repeat these calculations for other combinations of starting salaries and repayment rates.

These results suggest that the frequently voiced concerns about rising student debt are probably misdirected. The problem is not that debt levels are too high in terms of their manageability. In fact, average debt levels are well below the maximum that can be consider manageable and very few students exceed this maximum.

Reauthorization of GSL

Did the 1986 reauthorization of the Higher Education Act do anything to alleviate student debt problems and in particular deal with the debt manageability problem? The recent reauthorization made several important changes in the Guaranteed Student Loan Program:

1) annual loan limits are increased from $2500 to $2625 per year for freshmen and sophomores, from $2500 to $4000 per year for 3rd and 4th year undergraduates, and from $4000 to $7500 per year for graduate and professional students;

2) aggregate loan limits are raised from $12,500 to $17,250 for undergraduates and from $25,000 to $54,750 for graduate

and professional students;

3) the period of eligibility for loans is increased from 5 to 6 years,

4) interest rate charges are increased from 8 percent to 10 percent beginning in the fifth year of repayment,

5) eligibility for loans is dependent upon passing a needs test,

6) consolidation of loans can extend the length of the repayment period.

Of particular interest are the first three changes in the loan provisions, all of which increase the exposure of students to higher debt levels in the future. To the extent that borrowing is already viewed as excessive, the possibilities for excessive borrowing are now substantially greater. The increased interest on repayments (provision #4) will probably slow the rate of increase in debt though by how much is not clear. Restricting eligibility (provision #5) will also reduce student borrowing among those whose desire to borrow is not justified on the basis of financial need.

The net effect of the first five provisions is difficult to foresee, with three provisions acting to encourage more borrowing and two provisions acting to discourage borrowing. Our prediction is that the encouraging factors will outbalance the discouraging factors, with the result that average student debt for those who can still borrow will continue to increase.

Manageable Debts under Reauthorization

Large debts imply problems with the manageability of student debt. Countering this is the sixth provision, namely the ability of borrowers to extend the repayment period by consolidating several different loans. The length range of the repayment period under the consolidation provision is extended to 25 years, depending on the dollar amount of the consolidated loan (PL 99-498, Oct. 17, 1987.) The repayment schedules under the consolidation plan are:

1. loans between $5,000 and $7,500 shall be paid in not more than 10 years,
2. loans between $7,500 and $10,000 shall be paid in not more than 12 years,
3. loans between $10,000 and $20,000 shall be paid in not more than 15 years,

4. loans between $20,000 and $45,000 shall be paid in not more than 20 years, and

5. loans more than $45,000 shall be paid in not more than 25 years.

The effect of spreading loan repayments over an additional two years increases the limit on the size of manageable loan debts by roughly 11 percent. An additional three years or five years beyond the current 10 year repayment period, increases the limit by roughly 6 percent. A 10-15 year extension increases the manageable debt limit by 17 percent, respectively. Thus, the consolidation provision means that the manageability problem for most borrowers completely disappears for student who do not go beyond the bachelors degree.

Future Directions

One simple way to completely eliminate the debt burden is to extend the loan repayment period to encompass the borrowers working life. The longer the repayment period, the more students can borrow and still have manageable debts. It is only one additional step to move to an income contingent loan system of the kind discussed for many years (Dresch, 1986) and now being tested under the auspices of the Department of Education. Recently, Representative Thomas Petri (R.-Wisconsin) proposed the IDEA (Income Dependent Education Assistance Act) program which based repayment on income, and Johnstone (1972) has long advocated income contingent loan repayment plans. Under such a plan, no debt is unmanageable because of the adjustable repayment provisions and debt figures in extreme cases.

Conclusion

Our results indicate that the concern about unmanageability of student debt has been misdirected because the proportion of borrowers facing debt problems is so small. Much of the concern is erroneously based on the data from the MISAA period when all students were permitted to borrow, irrespective of family income or financial need. Loan volume, the number of borrowers, and average indebtedness skyrocketed during these years. However, when we examined debt levels in the post MISAA years, increases in borrowing and total educational costs parallel each other fairly consistently. Thus while it is true that college students in this country may indeed be taking out loans than ever before, there is little evidence to suggest that their indebtedness is excessive or unmanageable.

How do answer we posed in the beginning of this paper? Our judgement is that the effect of the reauthorization is to encourage borrowing among those who need to borrow but minimizes if not eliminates the manageability problem by extending the period of repayment. This means that we should be hearing little or nothing more about the excessive and unmanageable debt problem for college students because Congress has conveniently defined away the problem. At the same time student debt levels will continue to increase. Whether this kind of encouragement to borrow should be offered is unclear.

The suspicion is that in eliminating one kind of problem, unmanageability, we have created a new one, further reliance on loans. Whether students and higher education will be better off as a result remains to be seen.

ENDNOTES

1. The potential impact of the California state loan program was brought to our attention by Don Hill, California Student Aid Commission.

2. The actual $11,000 is not shown. The reader is asked to infer $11,000 by reading as if it were between $10,000 and $12,000.

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Table 1

Average Total Debt for Full Time Seniors with Debt; California 1979-80, 1982-83, 1985-86

Dependent Students Enrolled	1979-80	1982-83	1985-86
All 4-Year Institutions	$2,700	$4,900	$5,500
Public 4-Year Institutions	2,300	4,100	4,400
Private 4-Year Institutions	3,400	6,500	8,000
Independent Students Enrolled			
All 4-Year Institutions	$2,800	$5,300	$6,000
Public 4-Year Institutions	2,600	5,000	5,500
Private 4-Year Institutions	3,600	7,400	8,000

Notes: Average total debt is accumulated educational debt from previous and current years.

Source: Calculated from SEARS data tape.

Table 2

Average Annual Percent Change in Total Debt, Tuition, and Educational Expenditures for Full Time College Seniors in California

	Annual Percent Change in Debt	Annual Percent Change in Tuition	Annual Percent Change In Total Educational Costs
		1982-83 to 1985-86	
Dependents Enrolled			
All 4 yr institutions	3		2
Public 4 yr	2	1-11	1
Private 4 yr	5	7	4
Independents Enrolled			
All 4 yr institutions	6		6
Public 4 yr	4	1-11	4
Private 4 yr	4	7	6
		1979-80 to 1982-83	
Dependents Enrolled			
All 4 yr institutions	16		5
Public 4 yr	15	15-21	4
Private 4 yr	18	10	7
Independents Enrolled			
All 4 yr institutions	17		5
Public 4 yr	18	15-21	5
Private 4 yr	20	10	6

Notes: Figures are for tuition increase at public institutions (state colleges and University of California) and for private institutions (called "Independent Institutions" in California).

Source: Calculated from SEARS data tape, 1982. Tuition data provided by the California Student Aid Commission, 1987.

Student Loan Burden

Table 3

Average Debt to Total Educational Cost Ratios for Full Time Seniors with Debt in California 1979-80, 1982-83, 1985-86

Dependent	1979-80	1982-83	1985-86
All 4 yr Institutions	.09	.14	.13
Public 4 yr	.10	.15	.14
Private 4 yr	.08	.12	.12
Independent			
All 4 yr Institutions	.11	.17	.16
Public 4 yr	.11	.18	.17
Private 4 yr	.10	.15	.13

Source: SEARS data tape, 1979, 1982, 1985.

Table 4

Maximum Manageable Loans Based on Different Salary Levels and Manageable Debt Repayment Rates of 10.0, 12.2, and 15.0 percent

Salary Levels	Maximum Repayment Rate Out of Income		
	10 percent	12.1 percent	15.0 percent
$16,000 Salary Level	$10,962	$13,434	$16,848
$20,000 Salary Level	$13,681	$16,731	$20,605
$24,000 Salary Level	$16,484	$20,110	$24,726

Note: Assumes 10 year monthly repayments at an 8 percent interest rate.

Source: Hansen, W. Lee and Marilyn Rhodes, Student Debt Crisis: Are Students Incurring Excessive Debt, Economics of Education Review, 1988 (in press).

Table 5

Cumulative Percentage Distribution of Accumulated Debt for Full-Time Seniors With Debt in California, 1985-86

Total Debt Size	Dependent Public	Dependent Private	Dependent Total	Independent Public	Independent Private	Independent Total
$16,000 +	1	5	2	2	4	3
$14,000 +	1	9	4	4	11	5
$12,000 +	2	17	6	6	19	8
$10,000 +	4	27	11	9	27	12
$ 8,000 +	11	45	21	20	42	24
$ 6,000 +	26	59	36	39	57	42
$ 2,000 +	72	90	77	85	93	87
$ 1 +	100	100	100	100	100	100

Source: Calculated from SEARS data tape, 1985.

Undergraduate Students'
Cost of Attendance

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EXECUTIVE SUMMARY: Undergraduate Students' Cost of Attendance

The cost of attendance plays a central role in determining the amount of financial aid a student receives. If the recognized cost of attendance is significantly lower than students' actual expenditures, students' access to and choice of post-secondary institutions could be limited. If the recognized cost of attendance is significantly higher than students' actual expenditures, the financial aid program could spend more than is necessary to accomplish its goals. This paper describes the results of a Minnesota Higher Education Coordinating Board study of undergraduate students' cost of attendance. The results are compared to the cost of attendance recognized in Minnesota's State Scholarship and Grant Program, and to the results of other investigators.

Students attending two-year institutions had higher living expenses than students attending four-year institutions. There were, however, no statistically significant differences in living expenses by location of institution attended. Differences in students' living expenses related to residence type, household size, age, marital status and weekly take home pay were statistically significant. Eighty-four and seventy-six percent of the students surveyed reported living, book and supply expenses higher than the State Scholarship and Grant Program and median institutional allowances. Seventy percent reported living expenses above those necessary to maintain a lower standard of living as defined by the Bureau of Labor Statistics.

UNDERGRADUATE STUDENT'S COST OF ATTENDANCE

I. INTRODUCTION

The cost of attendance as used in the context of financial aid traditionally is defined as those expenses a student incurs in order to attend a post-secondary education institution. This includes educational expenses as well as living expenses. Educational expenses typically include tuition, fees, books and supplies. Living expenses typically include housing, food, transportation and personal expenses.

The purpose of need-based financial aid is to assist the student in financing the cost of attendance at the post-secondary institution that can best meet his or her educational needs regardless of economic circumstances. The cost of attendance, the student's resources, and the parents' resources are the primary determinants of the amount of financial aid that a student receives from most need based financial aid programs.

The cost of attendance plays a central role in the determination of financial aid awards. It is typically the base from which resources and other forms of assistance are subtracted in order to determine need. If the recognized cost of attendance is significantly lower than the student's actual expenditures, the student and/or family are required to finance more of those expenditures. This could limit students' access to and choice of post-secondary education institutions. If the recognized cost of attendance is significantly higher than the student's actual expenditures, the financial aid program could spend more than is necessary to accomplish its goals. Hence, the recognized cost of attendance and the extent to which it reflects students' expenditures merit review.

THE NEED FOR A REVIEW OF THE MINNESOTA COST OF ATTENDANCE

The Minnesota Higher Education Coordinating Board (1985) undertook a review of the cost of attendance recognized in Minnesota's State Scholarship and Grant Program. Three factors suggested the need for a review. First, the living, book and supply allowance used in the cost of attendance at that time had been established by the Coordinating Board on the basis of Fiscal Year 1981 costs and had not been adjusted until Fiscal Year 1986. Second, during the major redesign of the State Scholarship and Grant Program in 1983, reconsideration of the cost of attendance had been deferred. Third, the cost of attendance used at that time included a single living, book and supply allowance even though the evidence suggested that actual costs varied substantially among students.

Changes in the Cost of Living

While the living, book and supply allowance for the State Scholarship and Grant Program had not changed between Fiscal Years 1981 and 1985, the cost of living, as measured by the Twin Cities Consumer Price Index (U.S. Department of Labor, 1985), had increased by 26.6 percent during that period. The 1985 Minnesota Legislature had provided funds to raise the allowance by 7.6 percent during the 1985-87 biennium. The increase approximated the expected rate of inflation during the biennium, but did not adjust for changes in the cost of living between Fiscal Years 1981 and 1985.

Redesign of the State Scholarship and Grant Program

The redesign of the State Scholarship and Grant Program defined the responsibilities of students, parents, and government in paying for the cost of attendance at post-secondary education institutions. The definition of the cost of attendance used prior to the 1983 redesign, however, was retained. The redesign suggested a need to determine if the cost of attendance was consistent with the objectives of the redesigned program.

The Use of a Single Allowance

The recognized cost of attendance used a single living, book and supply allowance for all students. The literature, however, indicated that these costs varied substantially among students. Differentiation of this allowance would have allowed it to reflect more accurately the expenses that students incurred. This suggested a need to examine the extent to which costs differed among students and to determine if differentiation should be incorporated into the cost of attendance recognized in the State Scholarship and Grant Program.

PURPOSE

This paper examines undergraduate students' cost of attendance at post-secondary institutions. The second section discusses the role of the cost of attendance in awarding need-based financial aid, reviews operational definitions of the cost of attendance and reviews the findings of other investigators on students' expenditures and how they differ on the basis of student characteristics. Section III describes the Minnesota Higher Education Coordinating Board's study and its methods. The results of the Coordinating Board's study are reviewed in Section IV. They include estimates of the cost of attendance using alternative data sources, an examination of differences in the cost of attendance among students and comparisons of the state recognized cost of attendance with the empirical estimates. Section V presents conclusions, compares the Minnesota findings with those of others and discusses implications for further research.

II. BACKGROUND

This section describes the role and definition of the cost of attendance in the State Scholarship and Grant Program, in the federal Pell Grant Program, and in campus-based financial aid programs. The issue of a student's standard of living is discussed. The findings of other investigators on students' cost of attendance also are reviewed.

THE ROLE AND DEFINITION OF THE COST OF ATTENDANCE IN NEED-BASED FINANCIAL AID

The cost of attendance plays a central role in determining the amount of assistance a student receives from the State Scholarship and Grant Program and most other need-based financial aid programs. The precise role and definition of the cost of attendance, however, differs by program.

State Scholarship and Grant Program

Minnesota's financial aid policy in 1985, assigned responsibility for paying the cost of attendance to students, parents, and government (Minnesota Higher Education Coordinating Board, 1982). Students were expected to contribute 50 percent of the cost of attendance from earnings, loans, savings, or other assistance from institutional or private sources. The remaining 50 percent of the cost of attendance was to be met by expected contributions from parents, as determined by a national need analysis, and by a combination of federal Pell Grant and State Scholarship and Grant awards. The tuition portion of the cost of attendance was capped for students attending some private institutions.

The cost of attendance used in the State Scholarship and Grant Program in 1984-85 included two components.

- **Tuition and fees** - The tuition and fee allowance was differentiated by institution. If an institution charged differential tuition rates, a weighted average was used. Allowable tuition and fees were capped for private institutions at an amount equal to the average cost of instruction at comparable public institutions.
- **Living, book and supply allowance** - A single rate was used for all students. This allowance was intended to cover housing, food, transportation, personal, book and supply expenses.

A living, book and supply allowance of $2,750 per academic year was used in the State Scholarship and Grant Program during Fiscal Years 1981 through 1985. The amount was based on a 1980 survey of financial aid offices (Minnesota Higher Education Coordinating Board, 1980). The $2,750 allowance was approximately the median living, book and supply allowance used for campus-based programs in the 1980-81 academic year. The 1985 Legislature provided appropriations sufficient to raise the allowance to $2,850 for Fiscal Year 1986 and $2,960 for Fiscal Year 1987.

Independent students received an additional allowance for the living expenses of their dependents. The living expenses of dependent and independent students were recognized by the living, book and supply allowance in the cost of attendance. The living expenses of independent students' dependents were recognized by a family allowance that was subtracted from the student's expected contribution as determined by the need analysis. If the student had income and/or assets sufficient to yield an expected student contribution, the family allowance reduced that contribution.

Pell Grant Program

The amount of federal Pell grant aid a student received in 1984-85 was based on the cost of attendance, expected parental contribution, expected student contribution, and the maximum Pell award. The expected parental and student contributions were added to obtain the student aid index. The Pell award was estimated in 1984-85 using the following three formulas:

- Estimate 1 = maximum award minus student aid index.
- Estimate 2 = cost of attendance minus student aid index.
- Estimate 3 = 50 percent of the cost of attendance.

The student was awarded the smallest of the three values. Although tuition, fees, living and miscellaneous allowances were included in the cost of attendance, costs exceeding $3,800 were not recognized in determining the Pell grant award.

The cost of attendance used in the Pell Grant Program in 1984-85 had three components.

- **Tuition and fees** - The tuition and fee allowance was differentiated by institution.
- **Living allowance** - The living allowance was differentiated on the basis of type of residence. The actual room and board rate was used for students who lived on campus. An allowance of $1,600 was used for students who lived off campus but not with their parents. An allowance of $1,100 was used for students who lived with their parents.
- **Miscellaneous allowance** - A single allowance of $400 was used for all students.

Campus-Based Programs

Need-based financial aid programs administered at the campus level in 1984-85 typically determined financial need by subtracting parental and student contributions from the cost of attendance. Demonstrated financial need typically represented the total amount of need-based financial aid that a student could receive. Campus financial aid administrators were allowed discretion in allocating campus-based funds. Consequently, the extent to which a student's demonstrated financial need was met by financial aid varied from institution to institution. The mix of financial aid also varied by institution. Campus-based financial aid programs that used an institutional cost of attendance in 1985 included the Supplemental Educational Opportunity Grant Program (SEOG), the National Direct Student Loan (NDSL) Program, the Minnesota and federal Work-Study Programs, and institutional financial aid programs.

The financial aid administrator at each institution established the cost of attendance used for campus-based financial aid programs. The institutional cost of attendance typically included allowances for tuition, fees, books, supplies, housing, food, transportation, and personal or miscellaneous expenses. The administrator had discretion in establishing this cost of attendance. As a result of this discretion, the institution determined cost of attendance varied due to such factors as the financial aid philosophy of the institution, the resources available for campus-based financial aid programs, the types of students served, and institutional marketing considerations.

STUDENT STANDARD OF LIVING

Individuals establish their own levels of consumption. The particular level of consumption an individual establishes is influenced by factors such as the amount of income and assets possessed, and the individual's goals, preferences and household characteristics. Changes in these factors as well as technological and cultural changes affect an individual's level of consumption.

Establishing a living allowance requires a judgment about the level of consumption that the allowance will support. A standard of living can be specified in terms of the quantity and type of goods and services consumed at the desired level of consumption. The standard is useful as a reference in establishing a living allowance.

The National Association of Student Financial Aid Administrators (p. 1) recommended the following regarding student standard of living in establishing living allowances:

> Student expense budgets should be constructed with the purpose of reflecting a student's reasonable costs of attending an institution... The guiding principle in defining any student expense budget should be reasonableness. From the earliest days of the financial aid profession, the phrase 'modest but adequate' has characterized any discussion of student budgets. Following this prescriptive norm, aid administrators should accommodate a lower to moderate standard of living in student expense budgets.

This recommended standard of living might be characterized as that of a frugal student rather than a typical student. A frugal student would tend to consume smaller quantities and less expensive varieties of essential goods and services than would a typical student. A frugal student also would tend to minimize consumption of discretionary goods and services.

LITERATURE REVIEW

A number of research studies have measured students' cost of attending a post-secondary institution. Those that examined students' expenditures found differences on the basis of several characteristics. Some have noted observed differences in total expenditures or expenditure categories while others have examined the differences statistically. Some studies compared their findings with state or institution established allowances used in need-based financial aid programs.

Hendricks examined differences in expenditures reported by a sample of undergraduate students at the University of Minnesota Twin Cities. He found statistically significant differences in room and board expenditures based on residence, age and gender (p. 7). Hendricks also found statistically significant differences in total expenditures on the basis of residence type, age, receipt of financial assistance and class level (p. 5).

Hills and Van Dusen examined differences in mean book and supply expenses and mean living, book and supply expenses reported by a sample of undergraduate students in California public and private post-secondary education institutions. They observed slight differences in book and supply expenses on the basis of institutional type/control (p. 26-7). Large differences were observed in mean living, book and supply expenses based on residence type, marital status and the presence and number of dependents (p. 40-3). Hills and Van Dusen also observed differences in mean living, book and supply expenses on the basis of institutional type/control when controlling for residence type, marital status and the presence of dependents.

Trunkenbolz examined differences in several categories of living, book and supply expenses reported by a sample of undergraduate and graduate students at state supported post-secondary institutions in Colorado. She observed differences in housing but not food expenses for single students on the basis of residence type (p. 16-8). Housing and food expenses differed based on the number of dependents for married students. Trunkenbolz noted no observed differences in book and supply expenses on the basis of student class level or enrollment level (p. 20). The sample was divided into four groups representing geographic areas of Colorado in order to examine regional differences. Although Trunkenbolz observed differences in several expense categories based on geographic region, she concluded that after controlling for type of residence, there was no obvious pattern in these differences (p. 20). Finally, the student reported expenses were compared with the state parameters for institutional costs of attendance. Trunkenbolz concluded that the state parameters for single students compared favorably with the student reported data but that the state parameters for married students were much lower than the student reported data (p. 30).

Jackson and Pouge collected data on undergraduate students' cost of attendance at a public midwestern university. They observed differences in book and supply expenditures and several categories of living expenditures on the basis of gender and class level (p. 18-9).

The New York State Higher Education Services Corporation examined differences in educational and living expenditures reported by undergraduate and graduate students enrolled in New York public and private post-secondary institutions. Differences in living expenses were observed based on dependency status (p. 12). These differences were attributed to differences in type of residence, marital status and presence or absence of dependents. The study concluded that average total educational expenditures did not vary dramatically on the basis of ethnicity and that the differences observed were due to differences in institution attended and dependency status.

Corvin and McIver collected data on several categories of living expenditures from undergraduate and graduate students attending Virginia Polytechnic Institute and State University and compared their findings to the student expense budgets used for financial aid. They observed differences in living expenditures between single undergraduate and graduate students. Corvin and McIver concluded that the institution's student expense budgets underestimated students actual expenditures in all categories except miscellaneous expenses and that the discrepancy was greater for undergraduate than for graduate students (p. 11).

Deane, Bradshaw and Litkowski developed national estimates of post-secondary student living expenditures using four existing data sources. They observed substantial differences in living expenses on the basis of dependency status and type of residence

(p. 53). Although differences in living expenditures for dependent and independent students were observed based on parental income, there were no consistent patterns.

Maxey, Fenske and Boyd examined data on educational and living expenses from a random sample of Illinois State Scholarship and Grant monetary award recipients. They observed differences in several categories of educational and living expenses based on family income, dependency status, dollar amount of loans received, type of college attended and type of residence. They observed that self supporting students spent more than dependent students in most categories of living expenses and suggested that much of the difference might have been due to type of residence.

These research studies examined differences in students' cost of attendance at several levels. Some examined the total cost of attendance, others examined living, book and supply expenses and still others examined living expenses or categories there of. There were, however, similarities in their findings regarding the variables that appeared to be related to differences among students in the cost of attendance. Students' type of residence, whether they lived with their parents, in a dormitory or other types of housing, was the variable cited most frequently as being related to differences in students' expenditures. Other variables that often were cited included students' class level, the institution attended and students' dependency status. Variables cited less often or not examined in many of the studies reviewed included students' gender, age, number of dependents, marital status and income.

III. THE COORDINATING BOARD STUDY

The Coordinating Board study used three sources of data to examine students' cost of attendance at post-secondary education institutions. The sources included (1) a Coordinating Board survey of State Scholarship and Grant applicants; (2) a Coordinating Board survey of financial aid administrators in post-secondary education institutions, and (3) the Bureau of Labor Statistics of the United States Department of Labor. The three data sources possessed differing strengths and weaknesses and provided three largely independent measures of the cost of attendance or its components. Data from the State Scholarship and Grant Program operation files also were used. This section describes the data sources and the method of analysis.

SURVEY OF APPLICANTS

A survey of State Scholarship and Grant applicants was conducted in May and June of 1985. The survey collected information from students about their education and living expenses, their sources of financing for those expenses, and their employment patterns. The information on educational and living expenses was used in this paper. The information on applicant financing and employment patterns was used in Setter and Schoenecker. Data from the State Scholarship and Grant Program operation files were matched with the data from the applicant survey to obtain a more complete data set on each applicant. The program data included information on dependency status, the amount of family and student resources, the existence and amount of a state award and the expected parental and student contributions.

Population

The State Scholarship and Grant Program applicant pool was used as the population for this survey. The selection of this population made it possible to find and interview students. Since permanent addresses were maintained as part of the record, students selected could be contacted either through the institution attended or at the permanent address given.

The State Scholarship and Grant Program applicant pool included about 70 percent of all students eligible for the program in 1985. Eligible students in Fiscal Year 1985 were Minnesota resident full-time undergraduates attending eligible institutions. Further, these students were considered to be the most needy. Thus, using this population allowed a focus on the students of greatest concern for financial aid policy.

Sample

A stratified random sample of State Scholarship and Grant Program applicants eligible for the program in spring term 1985 was surveyed. The applicant population was divided into five groups: (1) applicants attending four-year institutions in the Twin Cities area, (2) applicants attending two-year institutions in the Twin Cities area, (3) applicants attending four-year institutions outside the Twin Cities area, (4) applicants attending two-year institutions outside the Twin Cities area, and (5) applicants attending the University of Minnesota-Twin Cities, the only doctoral institution in Minnesota. These groups were selected so that differences, if any, between the Twin Cities area and the rest of the state and among two-year, four-year, and doctoral institutions could be identified.

Within each of the first four groups, five post-secondary institutions were selected. The probability of an institution being selected was in direct proportion to its number of State Scholarship and Grant Program applicants in the group. Institutions were drawn without replacement.

A random sample of applicants was drawn within each institution so that there would be about 150 observations for each group. Applicants were contacted in the order they were drawn. If an applicant was not available, refused to participate, or was no longer a student, the next applicant on the list was contacted. Only 22 applicants refused to participate. The distribution of applicants in each group sample reflected the distribution of State Scholarship and Grant Program applicants in the selected institutions. A total of 753 applicants was interviewed.

Survey Approach

Trained interviewers conducted a structured telephone interview using a standardized survey form. This technique was selected to obtain the applicant perspective on education and living expenses, employment patterns and financing patterns.

Students were asked to report their current expenses. Students without dependents were asked to report their expenses and/or their share of joint expenses. Students with dependents were asked to report their own and their dependents' expenses. The term household was used to refer to students and their dependents. Students were asked to separately estimate the portions of educational and living expenses financed by various sources.

Limitations

The survey had two primary limitations. First, the population did not represent the total population of students in Minnesota. The State Scholarship and Grant Program applicant pool, in 1985, included only full-time undergraduates who were Minnesota residents attending Minnesota post-secondary institutions. Second, the survey reflected all the typical limitations associated with survey research that requires the respondent to recall information such as expenditures.

Several precautions were taken to minimize recall and estimation error. Applicants were asked to report expenses and job data in many small categories rather than in large categories. Applicants were asked to report job characteristics and expenses in each category for a time period deemed most appropriate for that category. Applicants also were allowed to choose alternative time periods. If an applicant wished to refer to records such as check registers, the option of a second call was offered. While these efforts may have minimized recall and estimation errors, such errors cannot be completely eliminated.

SURVEY OF INSTITUTIONS

A survey of institutional financial aid administrators was conducted in May and June of 1985. The survey collected information about the institutional cost of attendance used in campus-based financial aid programs. The administrators were asked to report their cost of attendance, the extent to which it was differentiated, and the procedures used for establishing and updating it.

Population

The population for this survey was the financial aid administrator at each post-secondary education institution that was eligible for the State Scholarship and Grant Program. Eligible institutions included those that were located in Minnesota, offered at least one program that led to a certificate or degree and were accredited, registered with the state or licensed by the state. There were 160 institutions eligible for the program in 1985. This population was chosen to be consistent with the population chosen for the survey of applicants.

Sample

A random sample of 21 institutions was selected for the Institutional Cost of Attendance Survey. The sampling procedure used was identical to that used to select the 21 institutions for the applicant survey. Although the samples were drawn independently, some institutions appeared in both samples.

Survey Approach and Limitations

A mail survey was used. This technique was selected to expedite data collection. The survey provided the institutional financial aid administrator perspective on students' cost of attendance. This perspective was valuable because institutional financial aid administrators possessed experience in measuring the cost of attendance for campus-based financial aid programs.

The primary limitation of the institutional cost of attendance was that it tended to serve multiple purposes. Use of the institutional cost of attendance in recruiting may have meant that institutional marketing considerations affected its establishment. Institutional financial aid policy also may have influenced the establishment of the institutional cost of attendance in order to ration available financial aid funds. Conversely, generous estimates may have been employed in an effort to affect the availability of financial aid funds, particularly from external funding sources that used estimates of need as a funding mechanism.

BUREAU OF LABOR STATISTICS

The Bureau of Labor Statistics (BLS) has conducted several studies since the 1940s to estimate living costs. The most recent study, published in 1967, estimated living costs at lower, moderate and higher standards of living. This study served as a source of data on the living cost component of students' cost of attendance.

The BLS estimates of living costs were developed for a family of four with two children. The budget for a moderate standard of living:

> was designed to represent the estimated dollar cost required to maintain this family at a level of adequate living--to satisfy prevailing standards of what is necessary for health, efficiency, the nurture of children and for participation in community activities (BLS, 1966).

The quantity and type of expenditures included in the budgets were based on nutritional and health standards and consumption patterns. The budgets for the higher and lower standards of living were obtained by varying the quantity and type of goods and services included in the moderate budget. The budgets were developed for 39 metropolitan areas and four nonmetropolitan regions of the United States.

Limitations

The primary limitation of the BLS budget estimates was that they were based on consumption patterns of the 1960s. Factors such as changes in energy costs, technological changes in the electronics industry, and heightened concern about health may have affected consumption patterns since the 1960s. The effect of these and other changes on consumption patterns, however, was not clear. Consequently, it was difficult to estimate the extent to which BLS budgets, adjusted for price changes, were representative of consumer spending in the 1980s.

Nonetheless, the BLS budgets were deemed useful in examining living expenses. They represented an effort to define and measure living costs for a given household size and standard of living.

METHOD OF ANALYSIS

Differences in expenditure levels and allowances were examined. Statistical techniques were employed in analyzing the student reported data on expenditures. The institutional administrator reported data and the BLS data were summarized and examined. Where appropriate, the findings from the student reported data were compared with the findings from the institutional financial aid administrator data and the BLS data.

Differences among students in reported expenditure levels on the basis of several independent variables were examined using multiple regression analysis and z-tests. Tuition and fees, book and supply expenditures and living expenditures, the dependent variables, were analyzed separately. Independent variables included institutional type, institutional location, type of residence, household size, age, marital status, gender, weekly take home pay, class level, dependency status, parental or student contribution.

Statistically significant differences in expenditures based on institutional type and location were determined using a z-test of the regression coefficients. Statistically significant differences on the basis of the other independent variables were determined using multiple regression analysis. Differences were considered to be statistically significant if the probability of their occurrence was less than 10 percent. Although differences in median expenses may have been observed between populations they were not reported as differences unless the statistical test indicated they were significant.

IV. RESULTS OF THE COORDINATING BOARD STUDY

This section describes the results of the Coordinating Board's study of the cost of attendance. Estimates of the cost of attendance developed with data obtained from the student survey, the institutional survey and Bureau of Labor Statistics are presented. The analysis is presented separately for educational expenses and living expenses. Information on child care expenses also is discussed.

EDUCATIONAL EXPENSES

Student Reported Data

This subsection describes the educational expense data obtained in the survey of students. Students were asked to report tuition and required fees and book and supply expenses.

Differences in student reported tuition and fee expenses, as expected, were related to the institution the student attended. The median student reported nine-month tuition and fee expenses in public institutions, displayed in Table 1, varied from $984 in two-year institutions in the Twin Cities area to $1,890 at the University of Minnesota-Twin Cities during academic year 1984-85. Tuition and fees for students attending private institutions ranged from $2,000 in two-year institutions in the Twin Cities area to $6,600 in four-year institutions outside the Twin Cities area.

Book and supply expenses reported by students did not vary by type or location of institution or students' class level.

TABLE 1. MEDIAN APPLICANT-REPORTED NINE-MONTH TUITION AND FEE AND BOOK AND SUPPLY EXPENSES BY POPULATION AND INSTITUTION TYPE, ACADEMIC YEAR 1984-85[1]

Population Group	Tuition and Fee Expenses Public	Tuition and Fee Expenses Private	Book and Supply Expenses
Twin Cities Four-Year	-	$6,000	$280
Twin Cities Two-Year	$ 984	2,000	240
Other Four-Year	1,501	6,600	287
Other Two-Year	1,051	-	181
University of Minnesota-Twin Cities	1,890	-	299

SOURCE: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey of State Scholarship and Grant Program Applicants (May-June 1985).

[1] Median refers to the value at the middle of a distribution. If all applicant-reported expenses are arrayed from low to high, the expenditures reported by the applicant in the middle of the distribution are the median expenses. One-half of the applicants would have reported expenses higher than this applicant, and one-half would have reported expenses lower than this applicant.

There were no statistically significant differences in these expenses between students attending two and four-year institutions, between students attending institutions in the Twin Cities area and institutions outside the Twin Cities area, and between students attending the University of Minnesota and students attending all other institutions. Nor were there statistically significant differences in these expenses between freshmen, sophomores, juniors, seniors or vocational students. Although median nine-month book and supply expenses, displayed in Table 1, varied from $181 to $299, the analysis indicated that these differences were not statistically significant.

Institution Reported Data

This subsection presents information on allowances for educational expenses obtained in the survey of institutional financial aid administrators. The administrators were asked to report allowances for tuition, fees, books and supplies.

Few institutions differentiated tuition and fee or book and supply allowances based on educational program. As summarized in Table 2, differentiation of tuition and fee allowances based on educational program was reported for two institutions. Differentiation of book and supply allowances was reported for five institutions, four of which were vocational institutions.

Median institution reported nine-month tuition and fee allowances varied by institutional type and control. Tuition and fee allowances, displayed in Table 3, varied from $1,025 to $5,560. Since the tuition rates charged by institutions in the

TABLE 2. NUMBER OF INSTITUTIONS REPORTING DIFFERENTIATION OF TUITION AND FEE AND BOOK AND SUPPLY ALLOWANCES ON THE BASIS OF EDUCATIONAL PROGRAM BY POPULATION[1], ACADEMIC YEAR 1984-85

Population Group	Tuition and Fee Allowance	Book and Supply Allowance
Twin Cities Four-Year	0	0
Twin Cities Two-Year	1	2
Other Four-Year	0	0
Other Two-Year	0	2
University of Minnesota-Twin Cities	1	1
Total	2	5

SOURCE: Minnesota Higher Eduation Coordinating Board Institutional Cost of Attendance Survey (May-June 1985).

[1] Five institutions were surveyed in each of the first four populations, and the University of Minnesota-Twin Cities campus was the fifth population.

TABLE 3. MEDIAN INSTITUTION-REPORTED NINE-MONTH TUITION AND FEE AND BOOK AND SUPPLY ALLOWANCES BY POPULATION AND INSTITUTION TYPE, ACADEMIC YEAR 1984-85

	Tuition and Fee Allowances		
Population Group	Public	Private	Book and Supply Allowance
Twin Cities Four-Year	-	$5,560	$285
Twin Cities Two-Year	$1,025	4,951	325
Other Four-Year	1,488	5,540	285
Other Two-Year	1,122	-	300
University of Minnesota-Twin Cities	2,025		450

SOURCE: Minnesota Higher Education Coordinating Board Institutional Cost of Attendance Survey (May-June 1985).

student sample differed from those charged by the institutions in the institutional sample, comparisons of student reported tuition and fee expenses with institutional tuition and fee allowances were not made.

Median nine-month book and supply allowances varied by type of institution. The lowest allowance, $285, was reported for both categories of four-year institutions, and the highest allowance, $450, was reported for the University of Minnesota-Twin Cities, as seen in Table 3 on the previous page. Institutional book and supply allowances tended to be higher than the student reported expenses.

LIVING EXPENSES

Student Reported Data

This subsection analyzes living expenses obtained in the survey of students. Students were asked to report expenses for housing, food at home, food away from home, transportation, health care, personal items, entertainment, and child care expenses.

Differences by Type of Institution Attended. Living expenses were higher for students attending two-year institutions than for students attending four-year institutions. This difference was statistically significant. After taking into account students' type of residence, household size, age, marital status, and weekly take home pay, the difference in living expenses remained statistically significant.

The differences may have been due, in part, to differences in transportation and personal expenses. Median transportation expenses for students attending two-year institutions were higher than for students attending four-year institutions. This pattern appeared in the Twin Cities area and outside the Twin Cities area and for students living with their parents and in other types of housing. Median personal expenses for students attending two-year institutions also were higher than for students attending four-year institutions. This pattern appeared for students living in other types of housing and living with their parents outside the Twin Cities area.

There were no statistically significant differences between living expenses reported by students attending the University of Minnesota-Twin Cities and those reported by students attending all other institutions. The finding of no statistically significant differences did not change after taking into account the students' type of residence, household size, age, marital status and weekly take home pay.

Differences by Location of Institution Attended. There were no statistically significant differences between living expenses reported by students attending institutions outside the Twin Cities area and those reported by students attending institutions in the Twin Cities area. The addition of information about students' type of residence, household size, age, marital status, and weekly take home pay did not change the finding of no statistically significant differences. Although Table 4 suggested that median living expenses reported by students attending institutions

TABLE 4. MEDIAN APPLICANT-REPORTED NINE-MONTH LIVING EXPENSES BY POPULATION, TYPE OF RESIDENCE, AND HOUSEHOLD SIZE, ACADEMIC YEAR 1984-85

	Household Size Equals One		
Population Group	Parents	Dorm	Other
Twin Cities Four-Year	$2,636	$3,614	$4,013
Twin Cities Two-Year	3,647	-	6,207
Other Four-Year	3,289	3,277	4,185
Other Two-Year	3,745	-	4,856
University of Minnesota-Twin Cities	3,823	4,597	5,448

	Household Size Equals		Average Per Additional Household Member
	Two	Three	
All Populations	$7,796	$9,144	$2,756

SOURCE: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey of State Scholarship and Grant Program Applicants (May-June 1985).

outside the Twin Cities area were slightly larger than those reported by students attending institutions in the Twin Cities area, the analysis, taking account of student characteristics, indicated that these differences were not statistically significant.

Differences by Student Characteristics. Differences in student reported living expenses on the basis of residence, household size, age, marital status, and weekly take home pay were statistically significant. The analysis indicated that there were no statistically significant differences in living expenses based on the students' class level, dependency status, gender, or the amount of the students' expected parental or student contribution as determined by the need analysis.

Students living with their parents typically reported the lowest living expenses while students living in other types of housing reported the highest living expenses within each population. Median living expenses for students living with their parents ranged from $2,636 to $3,823, as shown in Table 4 on the previous page. Students living in dormitories had median living expenses ranging from $3,277 to $4,597. Living expenses in other housing types ranged from $4,013 to $6,207. The median living expenses of students in all populations reporting a household size equal to two was $7,796. The comparable figure for students reporting a household size equal to three was $9,144. The average increase in median expenses for each additional household member was $2,756.

Institution Reported Data

This section presents the information on living allowances obtained in the survey of institutional financial aid administrators. The administrators were asked to report the allowances they use for housing, food, transportation, and health care expenses, as well as the allowances for any other expense categories. Some administrators reported allowances for each expense category while others reported allowances for combined expense categories. The living allowances presented here were based on the reported allowances, whether single or combined, for all of the above expense categories.

Most of the 21 institutions reported differentiation of living allowances on the basis of student characteristics, as seen in Table 5. Differentiation of living allowances based on type of residence and family size, with 20 and 18 institutions respectively, was most common. Although 20 institutions reported differentiation based on type of residence, only four differentiate their living allowances for students living off campus in other types of housing from their allowances for students living on campus. Marital status and age were a basis for differentiation of living allowances in four and five institutions respectively. Student dependency status was reported by 10 institutions as a basis for differentiation of living allowances.

Institutional living allowances were lowest for students living with their parents and highest for students living in other residence types. As displayed in Table 6, median living allowances for students living with their parents ranged from

TABLE 5. NUMBER OF INSTITUTIONS REPORTING DIFFERENTIATION OF LIVING ALLOWANCES BY POPULATION AND TYPE OF DIFFERENTIATION, ACADEMIC YEAR 1984-85

	Differentiation on the Basis of:					
Population Group	Type of Residence	On-Campus Off-Campus	Family Size	Marital Status	Age	Dependency Status
Twin Cities Four-Year	5	2	3	1	1	1
Twin Cities Two-Year	5	-	4	0	2	4
Other Four-Year	4	2	5	3	1	2
Other Two-Year	5	-	5	0	1	3
University of Minnesota-Twin Cities	1	0	1	0	0	0
Total	20	4	18	4	5	10

SOURCE: Minnesota Higher Education Coordinating Board Institutional Cost of Attendance Survey (May-June 1985).

TABLE 6. MEDIAN INSTITUTION-REPORTED NINE-MONTH LIVING ALLOWANCE BY POPULATION AND TYPE OF RESIDENCE, HOUSEHOLD SIZE EQUALS ONE, ACADEMIC YEAR 1984-85[1]

Population Group	Parents	Dorm	Other
Twin Cities Four-Year	$1,750	$2,965	$3,005
Twin Cities Two-Year	2,350	-	3,713
Other Four-Year	1,926	2,781	2,781
Other Two-Year	2,305	-	3,230
University of Minnesota-Twin Cities	2,865	4,680	4,680

SOURCE: Minnesota Higher Education Coordinating Board Institutional Cost of Attendance Survey (May-June 1985).

[1] Several institutions differentiate living allowance on the basis of dependency status, marital status, age or a combination of the three. The allowances for dependent students, single students, and students under the age of 35 were used in such instances.

TABLE 7. MEDIAN INSTITUTION-REPORTED NINE-MONTH LIVING ALLOWANCE BY POPULATION AND HOUSEHOLD SIZE, ACADEMIC YEAR 1984-85[1]

Population Group	Household Size = 2	Household Size = 3	Allowance Per Additional Household Member
Twin Cities Four-Year	$5,975	$ 7,193	$+1,321
Twin Cities Two-Year	5,454	7,192	+1,179
Other Four-Year	5,453	7,193	+1,395
Other Two-Year	5,254	7,193	+1,350
University of Minnesota-Twin Cities	7,950	9,060	+1,110

SOURCE: Minnesota Higher Education Coordinating Board Institutional Cost of Attendance Survey (May-June 1985).

[1] Several institutions differentiate living allowances on the basis of dependency status. The allowances for independent students were used in such instances.

$1,750 to $2,865. Median living allowances for students living in dormitories ranged from $2,781 to $4,680. Living allowances for students living in other types of housing ranged from $2,781 to $4,680.

The University of Minnesota, as displayed in Table 7 on the previous page, reported the highest living allowances, $7,950 and $9,060 for household sizes of two and three respectively. The living allowances reported by the two and four-year institutions for household sizes greater than one were similar. The similarity appeared to be due to the use of the ACT Self Supporting Student Allowance by many institutions.

Comparison of Student and Institutional Data

This subsection compares the student reported living expenses and median book and supply expenses to the State Scholarship and Grant Program living, book and supply allowance and the median institutional living, book and supply allowance. Median student reported book and supply expenses were added to each student's reported living expenses and arrayed from low to high to obtain a distribution. Median--rather than actual--student reported book and supply expenses were used so that the variation in student reported expenses along the distribution represented differences in living expenses only. The distribution of expenses was for all students with a household size equal to one. The median institutional living, book and supply allowance was the weighted average of the median institution reported living, book and supply allowance for each of the five population groups. The median for each group was weighted by the number of applicants in that group. Table 8 displays selected points from the distribution which ranged from a low of $1,877 at the 5th percentile to a high of $9,886 at the 95th percentile.

The 1984-85 State Scholarship and Grant Program living, book and supply allowance of $2,750 corresponded to the 16th percentile of the distribution of student reported expenses. Consequently, 16 percent of the students reported expenses equal to or lower than the allowance. Conversely, 84 percent of the students surveyed reported expenses higher than the allowance. In order to reach the midpoint of the distribution, the 50th percentile, it would have been necessary to move $1,574 up the distribution from the 1984-85 allowance. This would have been a 57 percent increase. The relative position of the state allowance was not unexpected given that it had not been adjusted for price changes between Fiscal Years 1981 and 1985 and given the financial aid practice of establishing living allowances at a lower to moderate standard of living.

The median institution reported living, book and supply allowance, $3,230, corresponded to the 24th percentile of the distribution of student reported expenses. The financial aid practice of establishing living allowances at a lower to moderate standard of living suggested that the institutional allowance would differ from median student reported expenses. The tendency of some institutions to hold allowances down in order to ration available financial aid resources also would have led to differences between institutional allowances and median student

TABLE 8. SELECTED APPLICANT-REPORTED LIVING EXPENSES PLUS MEDIAN BOOK AND SUPPLY EXPENSES, HOUSEHOLD SIZE EQUALS ONE, ACADEMIC YEAR 1984-85

Percentile	Living Book and Supply Expenses	Percentile	Living Book and Supply Expenses
5	$1,877	50	$4,324
10	2,373	55	4,560
15	2,650	60	4,959
16	2,750[1]	65	5,147
20	2,973	70	5,600
24	3,230[2]	75	6,128
25	3,284	80	6,779
30	3,542	85	7,382
35	3,743	90	8,256
40	3,884	95	9,886
45	4,135		

SOURCE: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey of State Scholarship and Grant Program Applicants (May-June 1985).

[1] State Scholarship and Grant Program living, book and supply allowance.

[2] Weighted average of median institution-reported living, book and supply allowance.

reported expenses. Institutional marketing considerations could conceivably have either positive or negative impacts on the level of institutional allowances. The observed differences between institutional allowances and median student reported expenses suggested that the first two factors may be more influential than the third.

Bureau of Labor Statistics Data

This subsection presents estimates of living expenses based on family budgets developed by the Bureau of Labor Statistics (1967). The estimates included expenses for housing, food, transportation, clothing, personal care, medical care, other consumption, and other costs.

The BLS budgets for a lower standard of living were used in developing the estimates of living costs. The use of the lower standard of living was consistent with the financial aid practice of providing for such a standard when establishing the living expense component of the cost of attendance. The BLS lower standard of living assumed that the family lived in rental housing, performed many services itself, and consumed goods and services at lower quantity and quality levels than families at the moderate standard.

The BLS data allowed differentiation of living expenses based on household size, age of the head of the household, marital status, and age of the eldest child. The living expenses presented in Table 9 were averages for the corresponding household size. The BLS based estimates of living expenses for a

TABLE 9. NINE-MONTH LIVING EXPENSES AT A LOWER STANDARD OF LIVING BY HOUSEHOLD SIZE AND AGE OF HEAD OF HOUSEHOLD, ACADEMIC YEAR 1984-85[1]

Household Size	Age of Head of Household			
	Under 35	35 to 54	54 to 64	65 and Above
One	$ 3,898	$ 4,009	$ 3,564	$ 3,118
Two	5,234	6,570	6,570	5,791
Three	6,904	9,020	9,577	8,575
Four	8,241	11,025	12,138	10,134
Five	10,468	13,140	13,809	-
Six or More	12,361	15,368	15,924	-

SOURCE: Bureau of Labor Statistics Data adjusted for price changes between 1967 and 1984.

[1] A simple average of the BLS budgets for the Twin Cities metropolitan area and non-metropolitan areas in the North Central region of the United States was used. This average was adjusted to reflect changes in prices between April 1967 and December 1984. The adjustment was based on a Consumer Price Index for Urban Consumers (CPI-U-X1) which incorporates changes in housing rental costs rather than changes in home ownership costs. This Consumer Price Index is only available in the form of a United States City Average. The twelve-month BLS budget was then adjusted to a nine month basis. Finally, the BLS Revised Equivalence Scale (Bulletin No. 1570-2) was used to adjust the base budget for differences in household size and age of head of household.

household size equal to one ranged from $3,118 for age 65 and above to $4,009 for ages 35 to 54. Living expenses for a household size equal to six or more ranged from $12,361 for age 35 and under to $15,924 for ages 54 and 64.

Comparison of Student and BLS Data. Seventy percent of comparable students reported living expenses higher than those necessary to maintain a lower standard of living as defined by the BLS. The BLS based estimate of living expenses, at a lower standard of living for individuals under age 35, $3,898, corresponded to the 30th percentile of the distribution of living expenses for comparable students. Comparable students were under the age of 35, lived in other types of rental housing, and had a household size equal to one. This subset included 236 students, or 31.3 percent of all students surveyed.

Thirty-nine percent of comparable students reported living expenses higher than those necessary to maintain a moderate standard of living as defined by the BLS for individuals living in rental housing. The BLS based estimate of living expenses at a moderate standard of living for individuals under age 35 and living in rental housing, $5,365, corresponded to the 61st percentile of the distribution of living expenses for comparable students.

CHILD CARE EXPENSES

Information of child care expenses was collected in the survey of students. The median nine-month child care expense reported by students for the academic year 1984-85 was $968.

Analysis indicated that none of the student characteristics examined was related statistically to the variation among students in child care expenses. One reason for this finding may have been the small number of students, 51, or 6.8 percent of the sample, that reported child care expenses.

V. CONCLUSIONS AND IMPLICATIONS

This section presents the conclusions of the Coordinating Board's study, compares its findings with those of other investigators and discusses the implications of the study for further research.

CONCLUSIONS

One objective of the Coordinating Board study was to examine differences in the cost of attendance among students. The analyses suggested that most components of the cost of attendance, as measured to student reported expenses, institution reported allowances and BLS estimates of living expenses, varied among students. Specifically, the analyses suggested that:

- Student reported tuition and fee expenses differed by institution attended.
- Differences in student reported book and supply expenses based on type or location of institution attended were not statistically significant.
- There were no statistically significant differences in student reported book and supply expenses on the basis of student class level.
- Student reported living expenses were higher for those attending two-year institutions than for those attending four-year institutions. This difference was statistically significant.
- There were no statistically significant differences in student reported living expenses based on location of institution attended, class level, dependency status, gender and the amount of the students' expected parental or student contribution.

- There were statistically significant differences in student reported living expenses based on type of residence, household size, age, marital status, and weekly take home pay.

- Institution reported living allowances usually differed by type of residence and household size and often differed by dependency status.

- BLS based estimates of living expenses differed by household size, age of head of household, marital status, and age of eldest child.

A second objective of the Coordinating Board's study was to compare the cost of attendance recognized in the State Scholarship and Grant Program with the estimates obtained in the study. The analyses suggested that the State Scholarship and Grant Program living, book and supply allowance of $2,750 and the median institutional living, book and supply allowance of $3,230 were at the lower end of the distribution of student reported expenses. Specifically, the analyses suggested that:

- Eighty-four percent of the students reported living, book and supply expenses higher than the State Scholarship and Grant Program living, book and supply allowance.

- Seventy-six percent of the students reported living, book and supply expenses higher than the median institution reported living, book and supply allowance.

The analyses further indicated, however, that most comparable students reported living expenses above those necessary to maintain a lower standard of living as defined by the BLS. Specifically, the analyses suggested that:

- Seventy percent of the comparable students reported living expenses above those necessary to maintain a lower standard of living as defined by the Bureau of Labor Statistics.

- Thirty-nine percent of the comparable students reported living expenses above those necessary to maintain a moderate standard of living as defined by the Bureau of Labor Statistics.

COMPARISONS WITH THE FINDINGS OF OTHERS

This paper adds to the research literature on students' expenditures for post-secondary education. Its statistical findings corroborated those of another statistical analysis, confirmed some observed differences and were counter to other statistical and observed differences in student expenditures.

Hendricks found statistically significant differences in room and board expenditures and in total expenditures on the basis of type of residence and age. Coordinating Board findings regarding living expenses tended to corroborate these findings. Hendricks' findings of significant differences based on gender, however, were not corroborated by the Coordinating Board Study.

Hills and Van Dusen observed slight differences in book and supply expenses on the basis of institutional type/control. These differences were not confirmed by the Coordinating Board's findings. Nor was Jackson and Pouge's observation of differences in book and supply expenses on the basis of class level confirmed. The Coordinating Board's findings were, however, consistent with Trunkenbolz's observation of no differences in book and supply expenses on the basis of class level.

Hills and Van Dusen's large observed differences in living, book and supply expenses on the basis of residence type, marital status and presence and number of dependents were confirmed by the Coordinating Board's finding of statistically significant differences in living expenses based on the same variables. Hills and Van Dusen observed differences in living, book and supply expenses on the basis of institutional type/control after controlling for residence type, marital status and the presence of dependents. The Coordinating Board's finding of a statistical relationship between living expenses and institutional type tended to support their findings.

Trunkenbolz concluded that no obvious pattern of differences in categories of living, book and supply expenses existed on the basis of geographic region. The Coordinating Board's finding of no significant differences in living expenses on the basis of institutional location seemed to confirm this observation.

The New York Higher Education Services Corporation concluded that differences in living expenses on the basis of dependency status were attributable to differences in residence type, marital status and presence or absence of dependents. This conclusion was corroborated by Coordinating Board findings that differences in living expenses on the basis of dependency status were not statistically significant but that differences on the basis of residence type, marital status and the number of dependents were significant. These findings also were consistent with the observations of Maxey, Fenske and Boyd that differences in students' cost of attendance on the basis of dependency status were due to differences in type of residence.

The conclusions presented in this paper regarding independent variables that were related to differences in students' expenditures confirmed some common findings of the literature and were counter to others. The Coordinating Board's finding of statistically significant differences based on type of residence corroborated the most common finding of other investigators. The finding of statistically significant differences based on type of institution seemed to confirm the observed differences of several other studies. The Board's finding of no significant difference on the basis of class level was counter to a common finding. In most instances, however, other investigators based this finding on observed differences in expenditures without controlling for other independent variables. The lack of statistically significant differences based on dependency status and gender also was counter to the findings of the articles reviewed. Two authors, however, attributed observed differences based on dependency status to type of residence, a conclusion consistent with Coordinating Board findings. Finally, four independent variables not considered in many of the studies reviewed, age, marital status, number of dependents and income, were found to be statistically significant in the Coordinating Board's Study.

IMPLICATIONS FOR FURTHER RESEARCH

Several areas for additional research are suggested by the findings of the Coordinating Board's study.

The low level of the living, book and supply allowance in the State Scholarship and Grant Program raises questions regarding the extent to which the program is accomplishing its goals of promoting access to and choice of post-secondary education institutions. An allowance that is exceeded by eighty-four percent of the program applicants suggests that these students' choice of institutions and perhaps their access to institutions may be constrained. As a result, students may be choosing lower cost institutions or opting out of post-secondary education.

The low living, book and supply allowance and the resulting lower levels of state grants may affect debt levels and employment patterns of post-secondary students in Minnesota. Students may be altering their financing strategies to rely more heavily on current and future income to finance their cost of attendance.

An increase in the state living, book and supply allowance would result in substantial increases in state grant awards, all else being equal. The impact of such increases on the financial aid awards received by state award recipients from other sources is uncertain. Students may not actually experience a net increase in financial aid.

The primary goal of need-based financial aid is to provide students access to and choice of a post-secondary education regardless of economic circumstances. This paper suggests that the expenditures students incur in order to attend post-secondary institutions vary substantially and change over time. These variations and changes in students' expenditures should be examined periodically. To the extent possible, they should be incorporated into the cost of attendance recognized in need-based financial aid programs. Ignoring these variations and changes in student expenditures could jeopardize the accomplishment of the goals of need-based financial aid.

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How Recipients Learn About Financial Aid

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How Recipients Learn About Financial Aid

Introduction

This paper presents an analysis of the ways in which students receiving financial aid utilize and perceive various sources of financial aid information. It also addresses the issues of when students begin financial planning for their education and how well students understand the terms of financial aid. The paper concludes with a factor analysis suggesting patterns of utilization and satisfaction with various sources of financial aid information and the understanding of financial aid among students.

Sample

During the 1985-86 academic year, the New York State Higher Education Services Corporation (NYSHESC) Division of Policy Analysis and Information Services conducted a statewide Educational Planning Survey (EPS). Data collection was carried out in cooperation with the Evaluation Consortium at Albany, part of the School of Education at the State University of New York at Albany. The purpose of the NYSHESC study was to learn about the sources of financial aid information used by New York State students receiving aid for the first time under the Tuition Assistance Program (TAP), a need-based entitlement grant program. Students in the sample were asked to complete a questionnaire about the services and sources they used for college and financial aid information, their educational decision-making, understanding of financial aid information, and types and amounts of financial aid received. After two mailings, 596 students, or more than half of those in the sample of 1,178, returned either a detailed four-page mail questionnaire or a shortened two-page questionnaire.

Background information from aid processing files was available on the sample of 1,178 first-time TAP recipients with respect to variables such as income, postsecondary sector of attendance, and region of residence. Information was also available on the total student population of 67,217 first-time TAP recipients with respect to the same variables. Relevant comparisons of the respondent group with the sample as a whole are displayed with respect to these variables in Tables 1-3. Comparative information for the total population is also included in these tables.

TABLE 1 - Net Taxable Balance Income

Distribution of Respondent Group, Sample, and Population

Net Taxable Income Category	Percent Respondent Group	Percent Sample	Percent Total Population
$ 0-10,000	45.8 (N=273)	50.7 (N=597)	49.5 (N=33,266)
10,001-20,000	23.2 (N=138)	22.0 (N=259)	23.6 (N=15,907)
20,001 + Up	31.0 (N=185)	27.3 (N-322)	26.8 (N=18,044)

TABLE 2 - Sector Distribution of Respondent Group,
Sample and Population

Sector	Percent Respondent Group	Percent Sample	Percent Total Population
CUNY	14.0 (N= 81)	15.9 (N=175)	15.4 (N= 9,688)
SUNY	48.0 (N=277)	42.6 (N=470)	43.4 (N=27,362)
Independent	31.2 (N=180)	31.3 (N=345)	29.5 (N=18,571)
Proprietary	6.8 (N= 39)	10.3 (N=114)	11.7 (N= 7,391)

TABLE 3 - Regional Distribution of Respondent Group and Sample

Region	Percent Respondent Group	Percent Sample
Metropolitan NYC	65.6 (N=391)	62.6 (N=738)
Non-NYC	34.4 (N=205)	37.4 (N=440)

High School Guidance Counselors - Utilization and Contact Initiation

Approximately 72% of students who responded to the survey reported having seen their high school guidance counselor for financial aid counseling at least once during their junior or senior years of high school. This included 73% of whites, 73% of black and 60% of Hispanic student respondents. Thus the guidance counselor is a well utilized source of financial aid information.

Moreover, most of the financial aid counseling of students from minority group families was initiated by the guidance counselor. For financial aid advising, guidance counselors initiated counseling for 72% of black and 79% of Hispanic student respondents who saw their guidance counselor for financial aid counseling, compared with a corresponding figure of 48% for white students. Also, guidance counselors initiated financial aid counseling for 54% of students in the $0-$10,000 net taxable income group, 55% of students in the $10,000-$20,000 income group, and 55% of students in the $20,001 and up income group.

High School Guidance Counselors - Usefulness of Information For Students

Eighty-five percent of students who had used the high school guidance counselor for financial aid counseling reported the information to be at least somewhat useful. The percentage reporting the usefulness of counselor-provided financial aid advising was consistently high for minority and low-income students.

These results underscore the role of guidance counselors as one of the more important sources of college financial aid information, particularly among minority and low-income students.

Financial Aid Officer - Utilization by Students

Approximately 73% of students who responded to the survey had seen their college financial aid officer for financial aid information. This included 69% of whites, 84% of blacks and 78% of Hispanics. Thus, utilization of the college financial aid officer as an aid information source is particularly high for minority group students.

Financial Aid Officer - Usefulness of Information For Students

Ninety-eight percent of students who had seen the college financial aid officer reported the information to be at least somewhat useful. This was a consistent finding across various ethnic, income and sector groups.

Bankers - Utilization by Students

Only 33% of all student respondents reported using bankers for financial aid counseling. This included 37% of whites, 21% of blacks, and 20% of Hispanics. There were no important differences in utilization between low ($0-10,000), medium ($10,001-20,000), and high income ($20,001 and up) categories.

Bankers - Usefulness of Information For Students

Seventy-six percent of students who used a banker for financial aid information, found the information to be at least somewhat useful. While the number of minorities who had used a banker was particularly low, there also appeared to be somewhat lower rates of satisfaction with the banker among minorities.

There was also a somewhat lower rate of satisfaction among the lower net taxable balance income group ($0-10,000), where 71% of students reported the information received to be at least somewhat useful compared with 81% of those in the $10,001-20,000 group and 78% of those in the $20,001 and up group.

NYSHESC Utilization by Students

As for the use of HESC services, 78% of respondents reported receiving a HESC brochure, 13% making a long-distance call, 10% making a local call, and 6% making a toll-free call to check on the status of their application. Utilization of HESC telephone services was highest among black students. Eighteen percent of black student respondents reported making direct local calls, 14%

reported making long-distance calls, and 11% reported using the HESC toll-free number to check the status of their applications.

Usefulness of NYSHESC Information For Students

Ninety-five percent of students who had used HESC services found them to be at least somewhat useful. This very high percentage of those finding HESC information useful was consistent across ethnic and income groups and for the various institutional sectors.

Mass Electronic Media - Utilization by Students

Only 33% of students had used TV and radio as a source of college financial aid information. Usage of mass electronic media was somewhat higher among blacks and Hispanics of whom 47% of combined blacks and Hispanics had used these sources of financial aid information.

Electronic Media - Usefulness of Information for Students

Forty-seven percent of students who used electronic media found the information to be at least somewhat useful as a financial aid information source. The usefulness for combined black and Hispanic students was somewhat higher with 58% compared with 41% of whites reporting electronic media as at least somewhat useful as sources of financial aid information.

Factor Analysis

A factor analysis using principal axis factoring, varimax rotation was conducted using SPSS-X.[1]

The factor analysis was conducted on 450 students who responded to the detailed four-page mail questionnaire. The analysis depicts sets of variables which are highly intercorrelated. This permits the identification of patterns of utilization, satisfaction, and understanding of financial aid information.

Four distinct factors or clusters of variables were identified: HESC services; HESC telephone services; other financial aid services; understanding financial aid.[2] These factors are mutually uncorrelated. This suggests that HESC services and particularly HESC telephone services might play distinct roles in providing financial aid information to students not utilizing other financial aid sources or not finding these sources useful.

Further, an analysis of the "understanding financial aid" factor found that one variable only loaded highly on this factor: the extent to which students utilized and found useful financial aid information provided by their guidance counselors when they had been in high school.

This means that the extent to which students find guidance counselor financial aid information to be useful strongly relates to their reported understanding of financial aid information. It suggests that guidance counselors might play a particularly important role in explaining financial aid information to students.

Conclusions

Guidance counselors, college financial aid officers and HESC were generally well utilized and seen as useful sources of financial aid information by a majority of students, including minority group students. Banks and electronic media were not as well utilized and the perceived usefulness of these sources was not as great.

Results of a factor analysis indicated that HESC telephone services might play a special role in reaching students not reached or favorably impressed by other sources of financial aid information. The results also suggest that guidance counselors might be particularly effective agents in promoting students' understanding of financial aid information.

Factor Analysis Notes

1 Twenty variables were entered into the analysis. Four factors accounting for 40% of the total variance (F1=12.5%, F2=9.8%, F3=9.2%, F4=8.4%) were selected based upon a scree plot of the eigenvalues. Only factor loadings equal to or greater than 0.5 in absolute value were considered in the analysis.

2 The variables comprising each factor were measured on an interval or ordinal scale. Variables concerning the extent of usage of various HESC services comprised an interval scale relating to the number of times each service was utilized by the student. Variable responses relating to the extent of utilization and usefulness for each financial aid service examined were coded on an ordinal scale (1=extremely useful information, 2=very useful information, 3=somewhat useful information, 4=not at all useful information, 5=never used this source of information, 6=not aware of this information source). Variables concerning the understanding of financial aid information were coded on ordinal scales. One of the variables was coded as to the degree of confidence a student had in understanding financial aid (1=extremely confident, 2=very confident, 3=somewhat confident, 4=not confident at all) and two others related to the time period in the student's life when awareness and understanding of financial aid occurred and were coded as: 1=before birth, 2=preschool years, 3=elementary years, 4=middle school/junior high, 5=freshmen or sophomore years, 6=junior or senior years, 7=after high school, 8=never.

Longitudinal Tracking of Aid Recipients: Issues in Packaging and Retention

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by

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EXECUTIVE SUMMARY

A 1985-86 sample of 1,178 first-time, full-time need-based grant recipients in New York State is being tracked through subsequent years' aid files. Rates of retention into the 1986-87 academic year were found to differ by income, sector/level of attendance, and ethnicity; however, these resulted partly from a tendency for lower-income and minority students to attend shorter-length programs.

ABSTRACT

The potentials of student financial aid applicant databases for studying packaging and retention issues are discussed. A sample of 1,178 students was selected from a population of first-time, full-time need-based aid recipients on the 1985-86 Tuition Assistance Program (TAP) file. They received a mail survey addressing such topics as financial aid information sources, satisfaction with guidance counseling services in high school, family financial planning for higher education, and demographic self-identification. The sample is now being tracked through subsequent years' grant and loan files to determine whether persistence, attrition, and/or changes in attendance patterns may be associated with observable demographic variables or features of financial aid packaging. Follow-up surveys may be performed to determine the ultimate outcomes of the aid recipients' educational participation.

The New York State Higher Education Services Corporation (NYSHESC) Division of Policy Analysis and Information Services (PAIS) is conducting an exploratory project addressing the utility of longitudinal tracking of aid recipients with regard to issues of packaging and retention. The sample consists of 1,178 students who were aided by the Tuition Assistance Program (TAP), New York State's need-based entitlement grant, as first-time, full-time recipients during the 1985-86 academic year.

The sample members initially received an "Education Planning Survey" on the effectiveness of guidance counseling services in their high schools, the sources from which they received financial aid information, and when their families began planning financially for higher education. A parent survey was also conducted for a more broadly based sample of dependent aid recipients. The Education Planning Survey (EPS), a joint activity of NYSHESC PAIS and the Evaluation Consortium at Albany,* is described more fully elsewhere.

The follow-up project consists of computerized matching by student Social Security number with subsequent years' aid files available to NYSHESC. This report covers the initial match with the 1986-87 Tuition Assistance Program (TAP) file. Eventual plans are also to match with Guaranteed Student Loan (GSL) program and default files and Aid for Part-Time Study (APTS) grant files in order to track subsequent academic participation and aid use by the sampled students.

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* The Evaluation Consortium is part of the School of Education at the State University of New York at Albany.

The study is limited to program retention of and certain aspects of packaging for grant recipients. Program retention is defined as subsequent year(s') participation in the grant program and is related to but not synonymous with academic retention. The study complements, but by no means supplants, others which compare the academic retention of aid users with that of non-aided students.

Only aid administered by NYSHESC or known to student respondents will be included in the packaging analysis. While thus restricted in scope and intent, the pilot study represents an economical alternative for grant and grant/loan administering agencies. Studies of this type may be conducted even by agencies with severe limitations on resources devoted to research.

The initial computer match revealed that nearly two-thirds (747 or 63 percent) of the 1985-86 TAP grant recipients received TAP grants again in 1986-87. Retention in the aid program indicates that these students had been successfully retained in a higher education program, although not necessarily in the same one they had attended the previous year. Differences in rates of aid program retention occurred by income category, sector/level of college attendance, and student ethnicity as self-reported on the Education Planning Survey (EPS).

For instance, according to Chart 1, about 70 percent of TAP recipients with 1984 net taxable balance incomes of from one dollar to $20,000 received TAP grants in 1986-7 as well as 1985-6. This was also true of 74 percent of TAP recipients with 1984 net taxable balance incomes of from $20,001 through $25,000. However, students with zero net taxable balance incomes in 1984 were much less likely to receive TAP grants again in 1986-87 after doing so in 1985-6. Only 52 percent of these students were retained in the aid program.

This finding was partially due to students with zero incomes tending to attempt shorter programs. Specifically, 54 percent of students with zero incomes initially attended programs of two years or less in duration. By contrast, 35 percent of students with incomes of from one dollar to $25,000 attempted programs of two years or less in duration.

Students in the highest net taxable balance income category, that of $25,001 and up, were the next least likely category to appear on the TAP processing file for a second time in 1986-7. However, this is probably the effect of a lack of income eligibility for the need-based and income-restricted TAP program.

Differences by sector and level of college attendance also occurred as shown in Chart 2. The lowest rate of aid program retention for a sector, 37 percent, occurred in the proprietary sector. This sector traditionally offers shorter programs than do the non-profit sectors.

Two-year colleges in both of the public sectors, The City University of New York (CUNY) and the State University of New York (SUNY), had markedly lower rates of aid program retention than did four-year colleges. This difference cannot be explained by transfers from two-year colleges to four-year colleges within the state, since students did not have to attend the same school in both years to be retained in the aid program. However, were students to transfer from two-year public colleges to either out-of-state schools or ineligible New York State institutions, they would cease to appear on the TAP file. Likewise, if they reduced their credit loads from full-time to part-time status, they would no longer be eligible to receive TAP grants. However, some may turn out to be Aid for Part-Time Study (APTS) program recipients.

Since the sample was restricted as much as possible to first-time, full-time aid recipients, lower rates of aid program retention in two-year public colleges as opposed to four-year colleges probably reflect lower rates of academic retention. The still lower rate at proprietary institutions probably reflects lower rates of academic retention combined with a certain incidence of expected completion of short-term programs. Follow-up contacts with institutional Registrars would be necessary to establish the relative weights of these effects.

As shown in Chart 3, students from various ethnic groups were more or less likely to appear on the TAP file in 1986-7 as well as 1985-6. At least three-quarters of Asian and Caucasian 1985-6 recipients were retained for a second year in the aid program (78 percent and 75 percent respectively). About two-thirds of black (66 percent) and Hispanic (67 percent) 1985-6 TAP recipients were awarded grants again in 1986-7. Students in the "other" category of ethnic self-identification had by far the highest rate of second-year aid program retention at 89 percent, but their numbers were small and the significance of their identification as "other" was undetermined. In the analysis that follows, they are assumed not to be black or Hispanic.

The differences discussed above were interrelated. Black and Hispanic students were more likely than others to have lower incomes and also to attend school in sectors with programs of shorter duration (community colleges and proprietary schools). To address the issue of differential retention rates, therefore, income category and college attendance level were used as control variables.

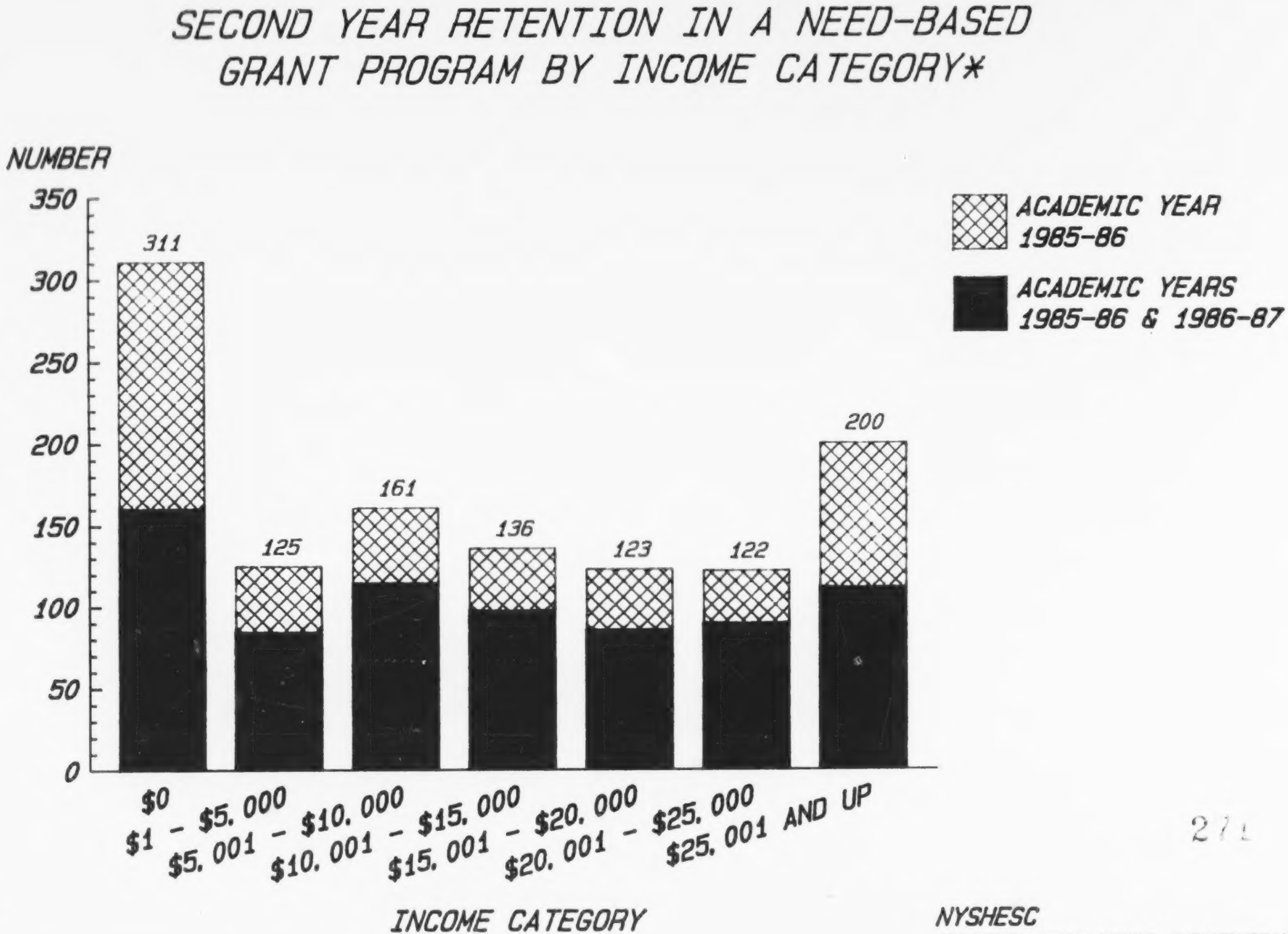
Income, college attendance level, and ethnicity categories were first dichotomized into low/high income, two-year/four-year level, and black or Hispanic/any other ethnicity. The results are shown in Table 1. The finding was that, in general, observed differences in second-year retention rates by ethnicity lessened within categories of the control variables. That is, within a given income and level category, the rates of aid program retention for black and Hispanic students more nearly approached that for others than did the overall rate. The only exception was in the low-income, two-year or less level category, where the magnitude of the difference increased.

Preliminary findings of the study support the notion that differential rates of academic retention by students from various ethnic groups reflect variables in addition to financial resources. Among these could be academic aspirations (as revealed by the length of program attempted); academic standing or achievement, including credit hours completed; type of program attempted; and interfering interpersonal problems. A reading of the retention and student loan default literatures suggests possible interaction effects among financial/academic/ interfering interpersonal problems which may contribute to high school and postsecondary attrition as well as to loan default.

A possible method for testing the interaction effect theory would be to conduct a follow-up survey of the sampled aid recipients on factors affecting their educational outcomes. Additionally, when the students are no longer locatable on NYSHESC aid files, institutional Registrars could be contacted to find out whether courses of study were completed, if withdrawals or transfers took place, or whether students continued in the same school without using aid administered by NYSHESC. Attention will thus be focused on how aid program retention differs from and/or coincides with academic retention. To some extent students may also be tracked through school and/or sector changes.

The packaging segment of the current study will focus specifically on the balance between grants and loans. Loan use by grant recipients during their initial academic year will be contrasted with later use. Loan as well as grant use will be considered by student income category, sector/level of attendance, and available demographic characteristics. Of particular interest is whether students in given income category/institutional sector and level categories evidence differential retention rates according to whether or not they use GSLs in addition to grants. Should the exploratory project prove fruitful, a larger-scale NYSHESC study may incorporate additional years of aid files and a more comprehensive sample of aid recipients in various programs and attendance statuses.

Chart 1



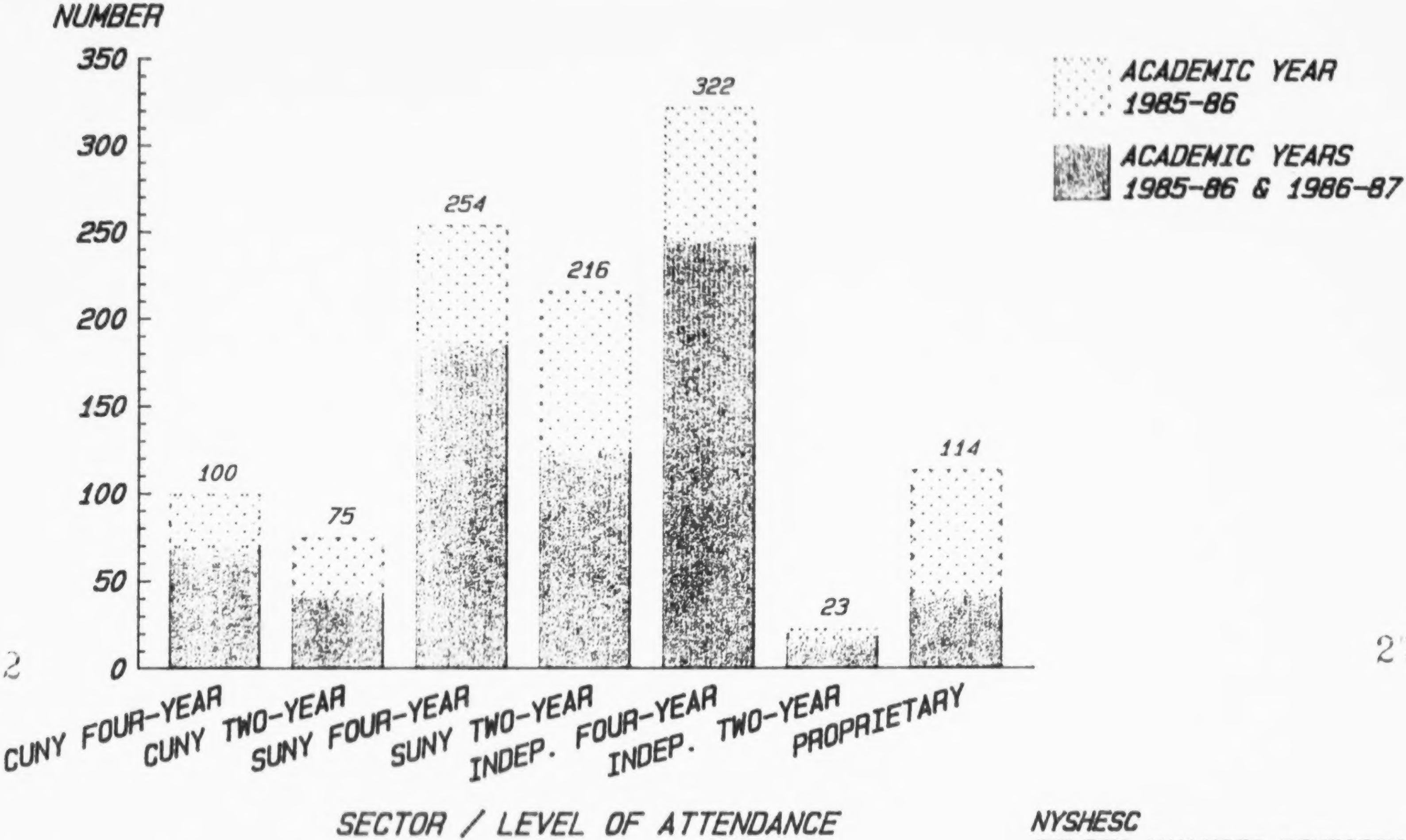
* 1984 NET TAXABLE BALANCE INCOME

NUMBER = 1,178

NYSHESC
POLICY ANALYSIS DIVISION
MAY 27, 1987

Chart 2

SECOND YEAR RETENTION IN A NEED-BASED GRANT PROGRAM BY SECTOR AND LEVEL OF ATTENDANCE

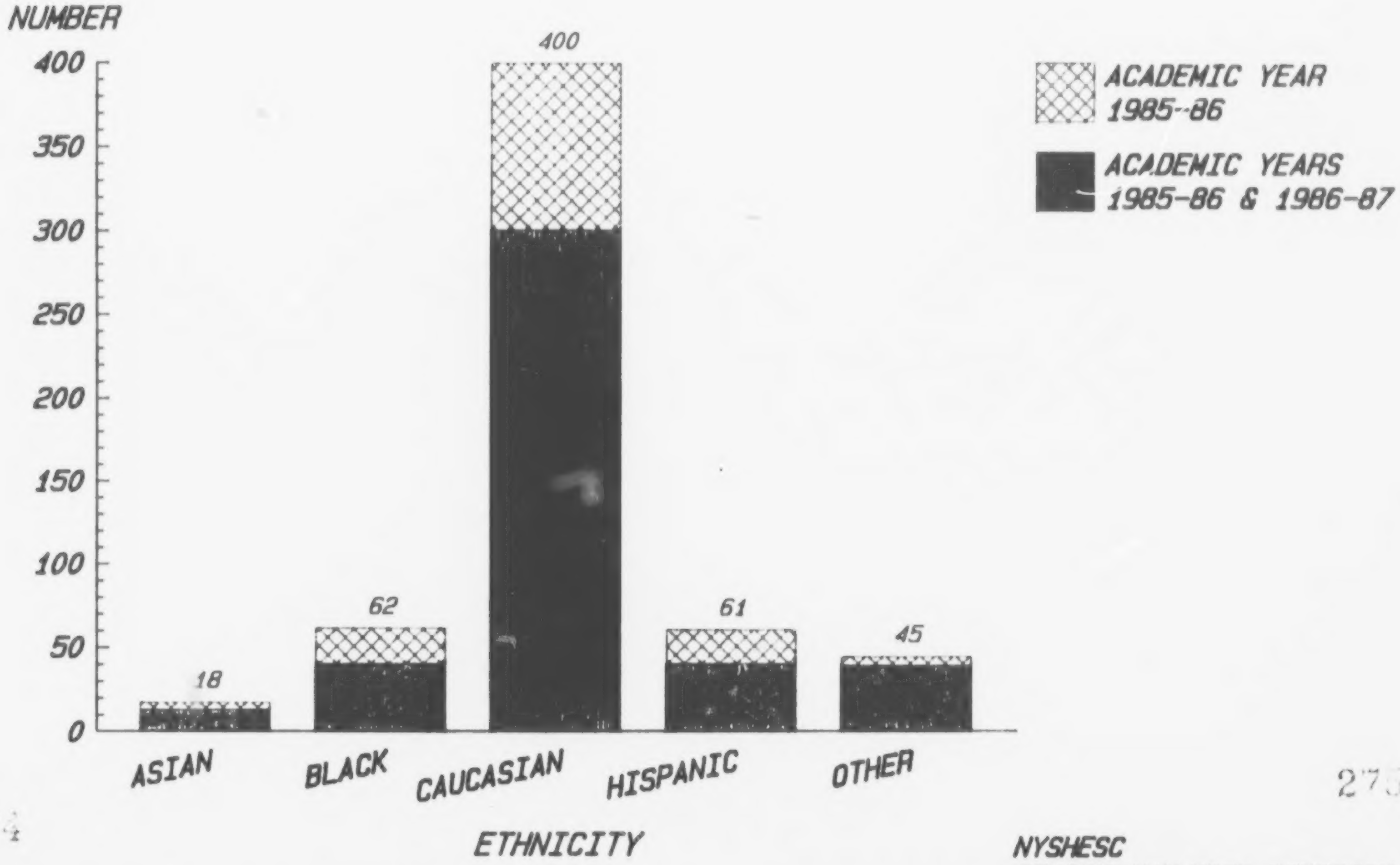


NUMBER = 1, 104

NYSHESC
POLICY ANALYSIS DIVISION
MAY 27, 1987

Chart 3

SECOND YEAR RETENTION IN A NEED-BASED GRANT PROGRAM BY ETHNICITY*



* BASED ON 586 SURVEY RESPONSES

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MAY 27, 1987

TABLE 1

Second-Year Retention in a Need-Based Grant Program by Ethnicity by Level of Attendance and Income*

Percent of 1985-86 TAP Recipients also Receiving Grants in 1986-87 by Level of College Attendance and 1984 Net Taxable Balance Income

	Four-Year Level			Two-Year or Less Level			
Ethnicity	All Four-Year	$0-10,000	$10,001 & Up	Two-Year or Less	$0-10,000	$10,001 & Up	Total
Black or Hispanic	77%	79%	74%	59%	59%	58%	69% N=115
Other	81	86	78	69	73	65	77 N=452
Total	80% N=378	84%	78%	66% N=189	67%	64%	75% N=567

* All variables shown as dichotomies

Source: NYSHESC PAIS 1985-86 Education Planning Survey Data, 1985-86 and 1986-87 TAP Mirror Files.

NYSHESC
Research Division
July 15, 1987 wsh

TRAINING
RESEARCH
CORPORATION

PROPRIETARY SCHOOLS:
Issues In Access and Aid

By:

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Presented At:

Fourth Annual
NCHELP/ NASSGP Research Network Conference

June 4, 1987

X

A Non-profit Institution

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INTRODUCTION

The participation of proprietary schools in state student aid programs is a relatively new phenomena. The purpose of this paper is:

1. To review the status of proprietary schools in federal and state aid programs.
2. To identify the characteristics that separate proprietary schools from the traditional sectors of higher education.
3. Describe the dilemma state officials face when proprietary schools become part of state aid programs.
4. To suggest principles that should guide the development of state-level student aid policy for proprietary schools.

Proprietary schools are the largest providers of noncollegiate vocational training in America. According to the most recent data available there are 5,509 proprietary schools accounting for 88% of all noncollegiate postsecondary vocational institutions. These schools enroll over a million students annually, accounting for 67% of all noncollegiate vocational enrollments (HEGIS, 1982). Proprietary schools range from store front barber schools enrolling as few as a dozen students to large multiple purpose technical institutes with enrollments of over a thousand. According to the 1982 HEGIS data between 1976 and 1982 proprietary schools enrollments grew 60%, while at the same time public non-collegiate vocational enrollments fell 6%.

The rapid growth of this sector has attracted increased public attention. Certainly one major factor in the rapid growth of proprietary schools is the availability of federal student aid. The Higher Education Amendments of 1972 expanded the definition of "Higher Education" to include accredited proprietary schools for the first time, thus giving their students access to the federal financial aid available under Title IV of the Higher Education Act of 1965.

The participation of proprietary schools, which have historically served a large number of the most disadvantaged students, in federal aid programs has grown geometrically. For example in 1974, proprietary students received $3.5 million in Pell grants--about 7% of all Pell Grants awarded nationally. By 1986 these figures increased to $783.5 million, 21% of all Pell monies. Participation in the Guaranteed Student loan programs has grown at a similar rate (Career Schools, 1987).

Research on how federal student aid has been used in proprietary schools is limited. The first study to analyze how proprietary schools packaged financial aid found that the schools emphasized grants over loans and that proprietary students had a larger unmet need then community college students (Applied Management Sciences, 1980). More recent research (Wilms, 1984) found that without the aid of Pell Grants most low income minority students could not afford to enroll in even the most inexpensive short-term training in the proprietary sector. However, the study also found that low income students dependent on Pell Grants could not afford to enroll in more expensive longer term training, that lead to higher wage jobs. The study also found that proprietary students were more dependent on GSLs then were community college students, even though the two groups had similar income distributions. An analysis of campus based aid in proprietary schools found that SEOG, NDSL, and CWS played a very limited role because of the limited funds available to proprietary students (Moore, and Wilms, 1984).

In the last two years as educational costs have continued to rise, proprietary students have become increasingly dependent on guaranteed student loans. Concern about the cost of defaults is sure to bring increased attention to the proprietary sector. Recent research in California (Wilms, Moore, Bolus, 1986) shows that it is the disadvantaged backgrounds of proprietary students, which accounts for the high default rate in this sector, not the practices of the schools. In California, community college students with similar characteristics have an equally high default rate.

The 1972 ammendments also required that proprietaries be included in policy making by mandating their membership on "1202 Commissions". Despite the legitimization of the proprietary sector in 1972 their treatment as an equal partner in the higher education system has varied from state to state, particularly in area of state financial aid policy. Depending on the politics and history of a given state proprietary schools may be excluded from state aid programs, or they may have full participation. In states such as New York some types of proprietary schools are eligible for state tuition grants, while others are not.

A recent survey of state policies (NASSGP, 1987) found that in a sample of 40 states with need-based programs proprietary school students accounted for about 6% of all aid recipients and about 8% of the aid expended. These data indicate that at the state level proprietary students are receiving a much smaller share of available need-based aid than they are at the national level.

WHAT MAKES PROPRIETARY SCHOOLS DIFFERENT?

As indicated earlier, proprietary schools have only recently been viewed as a legitimate part of higher education. The primary characteristic that separates them from other sectors of higher education is that they are driven by the profit motive. As a result these institutions behave differently from traditional institutions. Research in California (Wilms 1984), New York (Moore, 1986b) and Virginia (Moore, 1986a) reveals that proprietaries schools aggressively recruit students, spend substantial amounts on advertising, and are completely dependent on tuition. The schools are quick to add or drop programs in response to student or employer demand, and see themselves as competing primarily with other proprietary schools and to a lesser degree, public postsecondary vocational schools. Proprietary programs tend to be shorter then similar public programs. Finally, these schools aggressively seek to enroll disadvantaged students who have not been served by other institutions. As a result, studies show that proprietaries serve a much higher proportion of minority students then community colleges (Friedlander, 1980). These students have high financial need, but are also high risk in terms of dropping out, failing to find employment, or defaulting on a student loan.

To the degree that this aggressive market orientation encourages proprietary schools to meet students needs, work hard to place graduates, and respond to the labor markets it works in favor of quality training. In fact research shows that proprietary schools are just as effective at retaining and placing their students as community colleges (Wilms, 1974).

THE STATE OFFICIAL'S DILEMMA

Many state officials recognize that proprietary schools, driven by the profit incentive, are at least as effective as public community colleges. However, the profit incentive may also cause a limited number of schools to enroll students who can not benefit from training, but who are eligible for financial aid. Schools may also not offer quality training and may behave in other unethical ways. Sensational coverage of these misdeeds in the media continues to create a negative image of proprietary schools in the eyes of some parts of the public. An image that is sometimes reinforced by representatives of traditional higher education who find themselves in competition with proprietary schools for limited state financial aid.

At the same time that minority enrollment is falling in higher education overall, enrollment and particularly minority enrollment in the proprietary sector is growing. For example the recent NASSGP survey cited earlier found that from 1981-82 to 1986-87 the percent of state grant recipients that were Black fell from 20% to 18% (NASSGP, 1987).

Thus the state aid official's dilemma. If state aid, as intended, is to reach the most disadvantaged segments of society proprietary schools should be allowed, indeed encouraged, to participate in state aid programs. Yet, by encouraging participation the official is opening the door to potential, if isolated, scandal, and probably a higher default rate in loan programs.

To a degree the dilemma is inherent in the unique characteristics of proprietary schools. But experience with the proprietary sector shows that there are principles that can be used in policy development to insure that the profit motive produces quality training and responsible use of state student aid, while opening up access to the most disadvantaged segments of society.

PRINCIPLES FOR STATE FINANCIAL AID POLICY

The available research on the effectiveness of proprietary schools in serving the disadvantaged, and the use of federal student aid in proprietary schools suggest five principles that should guide the development of state financial aid policy.

1. Students should have equal access to need based grants and loans whether they chose to attend public vocational programs or private proprietary schools.

Research shows that proprietary schools are at least as effective at training and placing students as public institutions. The fact that so many disadvantaged students chose the alternative offered by proprietary schools indicates they may have a special ability to serve these students. Making state aid available to these students will help close the large unmet need identified in recent federal aid studies and enable at least some student to enroll in more expensive longer term training that leads to higher paid occupations.

In an era when minority participation in higher education is declining, proprietary schools may offer the best avenue for opening up access to higher education for disadvantaged minorities.

2. States should help students chose between public and private institutions by providing objective data on the schools' performance.

State could make a major contribution to students' ability to choose wisely among public and private training opportunities by gathering and publicizing data on the effectiveness of individual institutions. This data should include graduation rates, placement rates, and graduate earnings by program. Arizona has recently developed a method for collecting this data by tracing the earnings and employment data of graduates through the state unemployment insurance data base. A similar approach is being used to measure the effectiveness of certain public job training programs in California (Moore, 1986c).

This comparative data should be disseminated to high school counselors and career centers. Schools could be required to publish their results in their catalog along with statewide norms on a program by program basis.

This type of system creates an incentive for both public and private schools to provide quality training, work hard to place students and to not enroll students who can not benefit from instruction.

3. States should consider tying some portion of aid to student performance.

States could create even stronger incentives for improving instruction, retention and placement by withholding some portion of the aid used for tuition until the student graduates or is placed. Again, this standard should be applied equally to public and private institutions. The rational for this policy is that the public does not realize the benefit of the individual being trained until the student is trained and placed. This approach forces schools to share the risk of training along with the student and the state, and creates a powerful incentive to keep students in school and place them.

This type of performance contracting is increasingly common in JTPA programs around the country. One potential problem with performance contracting is that it can, inadvertently, create a disincentive to serve high-risk disadvantaged students. A schedule of payments which reflects the risk of serving these populations can be devised so this problem does not occur.

4. States should monitor high risk schools more intensively then lower risk schools.

The state should identify public and private schools where a large proportion of the student body is receiving need based aid. These schools should receive more intensive monitoring because the potential for abuse is most acute. In addition schools that fall below a certain standard of retention and placement should also receive more intensive monitoring.

5. The state should act quickly and aggressively to close schools that abuse state aid and prevent the owners from opening up again else where.

Much of the publicity that has discredited financial aid programs and proprietary schools come from a small number of schools that repeatedly abuse programs and act illegally. Prompt action to close these schools and wide spread publicity about the closures should discourage further abuse and ultimately increase the credibility of both the aid program and the schools.

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Variation in Student Financial Aid Among New England Private Colleges: A Conceptual and Empirical Analysis

by

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EXECUTIVE SUMMARY

Private, four-year New England undergraduate colleges vary substantially in their financial aid awards. Dividing the overall sample of institutions into two groups based on admissions selectivity, more selective colleges appear to be distinctly different from less selective colleges in the percentage of students judged needy, in average aid awards per student, and in average aid awards per needy student. Despite their higher comprehensive expense and their relatively well-publicized financial aid efforts, the data indicates that the more selective colleges have a substantially lower percentage of their students judged needy and offer only a moderately higher amount of average grant per student. Using simulation analysis, it appears that these results largely reflect the fact that while assessing a sharply higher comprehensive fee, more selective colleges also attract a group of students with a sharply higher distribution of expected family contribution.

Variation in Student Financial Aid Among New England Colleges: A Conceptual and Empirical Analysis

1. Introduction

Stimulated in part by a threatening demographic environment, the pricing policies of undergraduate colleges are likely to receive increasing scrutiny by college administrators and outside observers. An important aspect of such pricing is the awarding of financial aid. Yet, there is a dearth of organized data concerning how financial aid awards vary among undergraduate institutions and how such financial aid affects relative costs and revenues at these schools.[1] This paper provides such data on financial aid for freshmen at private, four-year New England undergraduate colleges.

The overall picture, as drawn in Section 2, is that substantial differences exist among institutions in the percentage of their students receiving aid, in the average amount of aid, and in the type and sources of aid. In Section 3, a conceptual framework is developed and simulation analysis is used to illustrate how institutional differences in aid could arise. Section 4's ensuing explanation emphasizes the extent to which actual institutional differences in student aid are attributable to differences in admissions selectivity, comprehensive expenses, and the family financial characteristics of matriculating students.

2. The Data on Institutional Differences in Financial Aid

The financial aid data for the present paper was provided by Peterson's Guides, which publishes such data in modified form in its College Money Handbook. The aid data used in this paper is for aid to needy freshmen during the 1985-86 academic year. Appendix A lists the included institutions: private, four-year, non-proprietary New England colleges with more than 100 full-time freshmen students and for which complete information was available through Peterson's.

In Table 1, unweighted institutional averages are provided for expenses and for several aspects of freshmen financial aid. The first section provides information on comprehensive fees (tuition, mandatory fees, and on-campus room and board), comprehensive expenses (consisting of comprehensive fees plus other estimated expenses for books, transportation, and miscellaneous items), and comprehensive expenses adjusted for the percentage of freshmen living off-campus (where, at least for those dependent students living at home with parents, estimated expenses are usually lower than for students living in college dormitories).[2] The second section focuses on the percentage of full-time freshmen applying for financial aid, the percentage applying for aid who are judged by the institution to be needy, and the percentage of students who actually receive aid. The third section cites total grants as a percentage of total aid (the remaining portion of total aid being self-help loans and work-study) and college-funded grants as a percentage of total grants (the remaining portion of total grants being externally funded). In the fourth section, the average amount of total aid based on all full-time freshmen is shown. Also included is information on average grant, average college-funded grant, and average self-help. Finally, in distinction to the

Table 1

Expenses and Financial Aid Awards for Needy Freshmen: Means and Variation for All Private New England Colleges 1985-86 Academic Year

	Mean	Standard Deviation	Difference Between First Quartile and Third Quartile Institutions
Fees and Expenses			
Comprehensive Fees (Tuition, Room, and Board)	$11,428	$2,335	$3,913
Comprehensive Expenses (Fees and Other Estimated Expenses)	12,621	2,411	4,044
Comprehensive Expenses Adjusted for Non-Resident Freshmen	12,384	2,556	4,520
Distribution of Full-Time Freshmen Students			
Percentage Applying for Aid	64	15	21
Percentage Judged Needy	55	16	22
Percentage Judged Needy and Receiving Aid	54	15	21
Form and Sources of Aid			
Percentage of Total Aid in Form of Grants	54	13	19
Percentage of Grant Aid Which Is College-Funded	61	19	27
Average Aid Per Student, Based on Number of Full-Time Freshmen			
Total Aid	$3,686	$960	$1,481
Grant Aid	2,011	780	1,083
Externally-Funded Grant Aid	708	323	343
College-Funded Grant Aid	1,303	764	1,089
Self-Help(Loans and Work-Study)	1,675	626	922
Average Aid Per Student, Based on Number of Freshmen Judged Needy			
Total Aid	$7,090	$1,982	$2,934
Grant Aid	4,034	1,906	3,464
Externally-Funded Grant Aid	1,314	494	706
College-Funded Grant Aid	2,720	1,831	3,135
Self-Help(Loans and Work-Study)	3,055	652	880

averages based on full-time freshmen, information is also shown for averages based on just those freshmen judged needy. Since, overall, about half of all freshmen are judged needy, average aid based on needy freshmen tends to be about twice the average based on all full-time freshmen.

In order to provide perspective on the extent of variation among institutions, Table 1 also includes calculations of standard deviation and of the difference between first quartile and third quartile institutions. These calculations serve to emphasize that substantial variation exists among institutions in the percentage of students applying for and receiving aid, in the source and nature of aid, and in the average amounts of aid received by students.

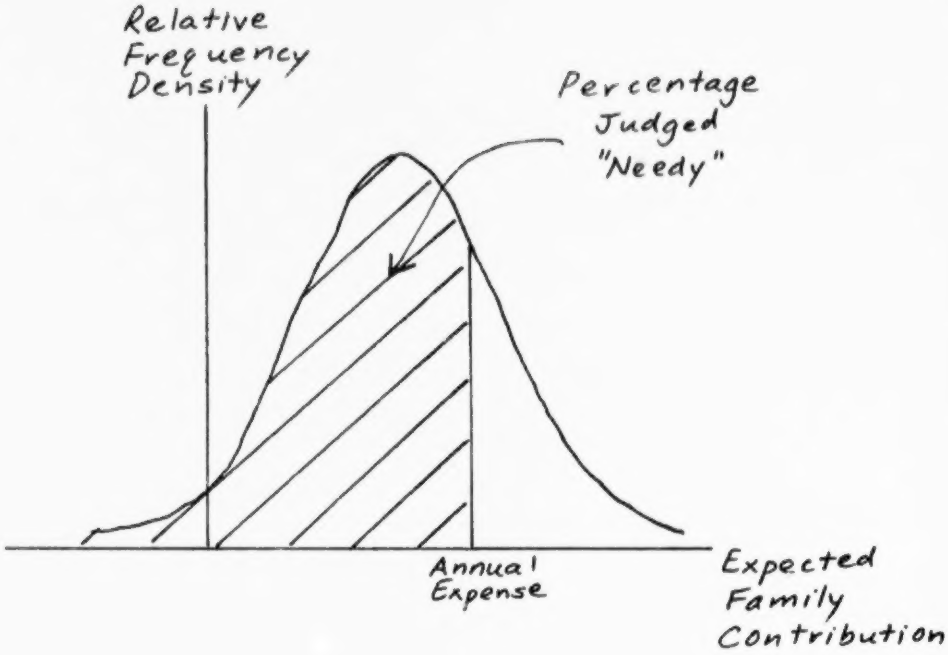
2. A Conceptual Perspective on the Variation Among Institutions

What key differences in institutional characteristics would result in variation among institutions in the percentage of their freshmen judged "needy" and in the average amount of aid per student?

Figure 1 provides a general view of how variation in need would emerge. The horizontal axis indicates the annual financial contribution expected from the student's family (including the student) towards the student's college expenses. Such an expected family contribution will be calculated by the college in conformity with its overall need analysis system. Also identified at a point along the horizontal axis is the total annual expense incurred by a full-time freshman at the

Figure 1

A Conceptual Perspective on the
Percentage of Students Judged "Needy"



college. The vertical axis identifies the relative frequency density of freshmen students based on their expected family contribution. The percentage of students judged "needy" would correspond to the cumulative percentage under the curve whose expected contribution fell short of the total expense. The total dollar amount of need would correspond to the total shortfall of expected contribution relative to expense.

While differences in need would be sufficient to generate differences in aid awards, further variation in aid will emerge due to differences in how college and external sources combine to meet need. Colleges are likely to vary in their packaging policies (including the percentage of need met through aid and in the form of aid); and governmental and non-college private aid, while likely to reflect differences in student need, may affect different colleges' students in ways not fully reflective of need.

To put such general conceptual analysis in perspective, simulation analysis is used to illustrate how aid awards would vary among colleges depending on differences in comprehensive fees, distribution of students' expected family contributions, and percentage of need met through aid. Specifically, in the simulations, annual comprehensive expense varies from $10,000 to $13,000 to $16,000. The distribution of expected family contribution is assumed to be normal and is simulated for two alternatives: mean = $8,000, standard deviation = $6,000; and mean = $20,000, standard deviation = $14,000. Two specific packaging alternatives are shown: one in which 100% of need is met, the first $3,000 of need being met through self-help; and one in which 90% of need is met, again the first $3,000 through self-help. With three alternatives for comprehensive expenses, two alternatives for distribution of expected family contribution, and two for percentage of need met, there are a total of twelve simulated cases.[3]

Table 2 provides the results for the twelve cases. In order to gain a sense of what the simulation results are showing, it is helpful to hold two of the three key characteristics constant while allowing the third to vary.

As a first comparison, what happens if the distribution of expected family contribution is held constant, the percentage of need met through aid is held constant, but the comprehensive expense is allowed to vary from $16,000 to $13,000 to $10,000?[4] Other characteristics being held constant, higher expense results in:

o Higher percentage of students judged needy

o Higher average overall aid, average grant, and average self-help per student and per needy student

What happens if comprehensive expense is held constant and the percentage of need met through aid is held constant, but the distribution of expected family contribution is allowed to vary from "high" to "low"?[5] Other characteristics being held constant, higher expected family contribution results in:

o Lower percentage of students judged needy

o Lower average overall aid, average grant, and average

Table 2
Financial Aid Awards: Simulation Results

	Percentage of Students Judged Needy	Average Overall Aid Per Student	Average Grant Per Student	Average Self-Help Per Student	Average Overall Aid Per Needy Student	Average Grant Per Needy Student	Average Self-Help Per Needy Student
Case 1 High Expense High EFC 100% Need Met	39%	$3,310	$2,272	$1,038	$8,576	$5,888	$2,689
Case 2 Mid Expense High EFC 100% Need Met	31	2,286	1,469	817	7,410	4,763	2,647
Case 3 Low Expense High EFC 100% Need Met	24	1,479	857	622	6,194	3,590	2,604
Case 4 High Expense High EFC 90% Need Met	39	2,979	1,954	1,025	7,719	5,064	2,655
Case 5 Mid Expense High EFC 90% Need Met	31	2,057	1,252	805	6,669	4,060	2,609
Case 6 Low Expense High EFC 90% Need Met	24	1,331	719	612	5,575	3,012	2,563
Case 7 High Expense Low EFC 100% Need Met	91	7,728	5,410	2,318	8,509	5,957	2,552
Case 8 Mid Expense Low EFC 100% Need Met	80	5,156	3,259	1,897	6,472	4,091	2,381
Case 9 Low Expense Low EFC 100% Need Met	63	2,872	1,665	1,207	4,563	2,646	1,917
Case 10 High Expense Low EFC 90% Need Met	91	6,930	4,632	2,297	7,630	5,101	2,530
Case 11 Mid Expense Low EFC 90% Need Met	80	4,615	2,747	1,867	5,793	3,449	2,344
Case 12 Low Expense Low EFC 90% Need Met	63	2,517	1,372	1,145	4,000	2,180	1,820

Assumptions: High Expense ($16,000), Mid Expense ($13,000), Low Expense ($10,000)
High EFC($20,000 Mean, $14,000 Standard Deviation), Low EFC ($8,000 Mean, $6,000 Standard Deviation)
100% Need Met (100% of Need Met, $3,000 Self-Help), 90% Need Met (90% of Need Met, $3,000 Self-Help)

self-help per student

- o With two slight exceptions, higher average overall aid, average grant, and average self-help per needy student[6]

What happens if comprehensive expense is held constant and distribution of expected family contribution is held constant, but percentage of need met is allowed to vary from 100% to 90%?[7] Other characteristics being held constant, higher percentage of need being met results in:

- o No difference in percentage of students judged needy
- o Higher average overall aid, grant aid, and self-help per student and per needy student

Holding two characteristics constant while allowing the third to vary helps to gain a sense of the simulation results. However, it may be the case that the characteristics are correlated with one another. Thus (and this anticipates the actual results of Section 3), it is possible that higher expense colleges attract a student group with a higher distribution of expected family contribution and tend to meet a higher percentage of students' calculated financial need. In such a case, higher expense colleges may have a lower percentage of students judged needy. For example, the comparative results for Case 1 (a college with high expense, high expected family contribution, 100% need met) and Case 12 (a college with low expense, low expected family contribution, 90% need met) provide such an illustration. The Case 12 college, despite lower comprehensive expenses, has a higher percentage of needy students than the Case 1 college. Based on all full-time freshmen, average overall aid and average grant aid are moderately lower in Case 12. However, based on just those full-time freshmen who are judged needy, average overall aid and average grant aid are sharply lower in Case 12.

3. A Partial Explanation of Actual Differences in Aid Awards: Selective Versus Standard Institutions

While this paper cannot be said to provide a full explanation of actual aid differences among private colleges, the present section attempts to organize available data in a way which reflects the primary elements of such an explanation. A key part of that explanation is suggested by the Zemsky-Oedel observation that competition among undergraduate institutions "...occurs principally between like institutions" [Zemsky and Oedel, p. 46] with the major aspects of competitive segmentation among private institutions revolving around admissions selectivity. Of prime relevance for financial aid, the Zemsky-Oedel perspective (see, especially, Chapter 3) suggests that institutions which differ in admissions selectivity tend, as well, to differ in the level of their comprehensive expenses and in the socioeconomic characteristics of their students; and it is possible that aid packaging policies may also be correlated with selectivity differences. In order to explore such potential differences, the overall New England sample is divided into two groups which reflect differences in admissions selectivity. In this classification, "selective" institutions are those ranked in Barron's Profiles of American Colleges as "most competitive" or "highly competitive." "Standard" institutions are those ranked by Barron's as "competitive" or "less competitive."[8]

First, as already noted, selective institutions tend to assess higher comprehensive fees and have higher comprehensive expenses than at standard institutions. Specifically, average comprehensive fees were $3,838 higher, average comprehensive expenses were $3,917 higher, and average comprehensive expenses adjusted for the percentage of freshmen living off campus were $4,201 higher at the selective institutions.

Second, there are reasons to anticipate that the financial status of students matriculating at the selective colleges differs from the financial status of students at standard colleges. One reason for this anticipated difference is the positive correlation of academic achievement and aspirations with family income [Zemsky and Oedel, p. 35]. Thus, more stringent admissions selectivity may result in a distribution of students with higher expected family contribution. Further, despite the presence of potentially high financial aid awards, academically qualified students from families of lower income may be inhibited by high comprehensive fees from applying to more selective institutions.

Third, there are some indications that the selective and standard institutions may be using somewhat different need analysis methodologies. While most institutions profess to employ an approach based on Uniform Methodology, the Survey of Undergraduate Need Analysis Policies, Practices, and Procedures [pp. 15-17 and pp. 67-68] appears to indicate a more frequent deviation from Uniform Methodology at more selective institutions, the deviation typically being in the direction of higher expected family contribution. Thus, faced with a given student's family with given financial characteristics, there may be some tendency for the more selective colleges to estimate a higher expected family contribution. Were other factors equal, this difference in calculating expected family contribution would tend to lead to a lower percentage of students being judged needy at the more selective institutions.[9]

Fourth, with regard to aid packaging, some systematic differences between the selective and standard institutions appear to be present. Available data indicates that virtually all selective institutions purported to meet 100 percent of freshmen students' need while standard institutions appear to meet approximately 90 percent of need [The 1987 College Money Handbook]. Data from the Consortium on Financing Higher Education's Tuition, Student Budgets, and Self-Help at the Consortium Institutions for Academic Year 1986-87 [p. 24], providing information for about half of the selective institutions, indicates a self-help requirement for freshmen averaging $3,400 at the selective institutions during 1985-86. Unfortunately, no known data exists which would permit a clear generalization about typical self-help levels at standard institutions.

The data of Table 3 indicates that in most aspects of financial aid awards, the selective and standard institutions differ significantly:

o First, despite lower comprehensive fees ($10,061 versus $13,899), expenses ($11,234 versus $15,151), and adjusted expenses ($10,896 versus $15,097), a strikingly higher percentage of students at standard institutions are judged needy and receive financial aid (59 percent versus 43 percent).

o Second, the percentage of total aid in the form of grants is substantially lower at standard institutions (47 percent versus 66 percent), and the percentage of grant aid in college-funded form is lower (53 percent versus 76 percent).

o Third, the average amounts of total aid ($6,102 versus $8,882), grant aid ($3,008 versus $5,901) and college-funded grant aid ($1,733 versus $4,515) per needy student are sharply lower at standard institutions.

o However, since a higher percentage of students at standard institutions receive aid, it turns out that the average amount of total aid per student (including needy and non-needy students) is virtually equal ($3,577 versus $3,837) between the standard and selective institutions and the average amounts of grant aid ($1,704 versus $2,532) and college-funded grant aid ($941 versus $1,918) per student are only moderately lower at standard institutions.

These results help to clarify an interesting question which arises in comparing the pricing of standard versus selective institutions. The selective institutions tend to assess higher

Table 3

Expenses and Financial Aid Awards for Needy Freshmen: Comparison of Selective and Standard Private New England Colleges 1985-1986 Academic Year

	Mean for Selective Colleges	Mean for Standard Colleges
Fees and Expenses		
Comprehensive Fees (Tuition, Room, and Board)	$13,899	$10,061
Comprehensive Expenses (Fees and Other Estimated Expenses)	15,151	11,234
Comprehensive Expenses Adjusted for Non-Resident Freshmen	15,097	10,896
Distribution of Full-Time Freshmen Students		
Percentage Applying for Aid	55	69
Percentage Judged Needy	43	61
Percentage Judged Needy and Receiving Aid	43	59
Form and Sources of Aid		
Percentage of Total Aid in Form of Grants	66	47
Percentage of Grant Aid Which Is College-Funded	76	53
Average Aid Per Student, Based on Number of Full-Time Freshmen		
Total Aid	$3,837	$3,577
Grant Aid	2,532	1,704
Externally-Funded Grant Aid	613	762
College-Funded Grant Aid	1,918	941
Self-Help(Loans and Work-Study)	1,305	1,874
Average Aid Per Student, Based on Number of Freshmen Judged Needy		
Total Aid	$8,882	$6,102
Grant Aid	5,901	3,008
Externally-Funded Grant Aid	1,386	1,275
College-Funded Grant Aid	4,515	1,733
Self-Help(Loans and Work-Study)	2,981	3,094

comprehensive fees than the standard institutions, but the higher fee institutions also tend to offer higher amounts of financial aid. What is the result, from an institutional perspective, in terms of average net fees per student--i.e., net of the amount of college-funded grant aid offered to students? Given that the average amount of college-funded grant aid is only moderately higher at selective institutions (by $977), such higher aid only slightly reduces the original gap in comprehensive fees ($3,828) leaving a net gap of $2,851. Despite higher amounts of college-funded grant aid, the more selective institutions collect substantially higher average net fees per student.

Perhaps the most surprising aspect of the above comparison is that the standard institutions have a substantially higher percent of their students judged needy and receiving aid. Apparently, the comparative situation is much like that illustrated by Cases 1 and 12 in the simulations.

Indeed, it is possible to work backwards from the results of Table 3 and to ask: what average expected family contribution at selective and standard colleges would have given rise to the specific differences in percentage of students judged needy (43 percent versus 61 percent)? In answering this question, the annual comprehensive expenses (including tuition, room, board, and other expenses) are taken to be the adjusted averages for 1985-86: $15,097 for selective colleges and $10,896 for standard colleges. The median expected family contribution at the selective colleges must be above $15,097 (thereby yielding the result that less than half the students are judged needy) while the median expected family contribution at standard colleges is below $10,896 (thereby yielding the result that more than half the students are judged needy).[10] These represent dramatic differences in the median of expected family contribution between selective and standard colleges. There is a considerable gap-- perhaps greater than is commonly understood-- in the family financial characteristics of students attending private selective colleges relative to private standard colleges in New England.

It is also interesting to consider what aid awards would have arisen at the standard colleges if the standard colleges had assessed their lower annual comprehensive fees but attracted students with the estimated financial characteristics of the selective colleges and what aid awards would have occurred if the selective colleges had assessed their higher annual comprehensive fees but had attracted students with the estimated financial characteristics of the standard colleges. In trying to gain some sense of the answer to this question, one may construct a set of simulations similar to that presented in Section 2.
Envision two types of college: a higher expense, selective college with comprehensive expenses of $15,150 and with a financial aid policy where 100% of need is met, the first $3,400 of aid being in the form of self-help; a lower expense, standard college with comprehensive expenses of $11,200 and with a financial aid policy where 90% of need is met, the first $3,400 of aid being in the form of self-help. Envision two groups of

students, distinguished by the financial characteristics of their families: one group whose expected family contribution corresponds to a normal distribution with mean = $17,750 and standard deviation = $14,850; and a second group whose expected family contribution corresponds to a normal distribution with mean = $9,100 and standard deviation = $7,900. With two types of colleges and two distributions of expected family contributions, four possible combinations exist. The results for these four combinations are displayed in Table 4.[11]

For the lower expense, standard college, attracting the student group with more favorable expected family contribution characteristics would substantially lower its offer of financial aid. Specifically, only 33 percent of its students would be judged needy (not 61 percent) and the average grant per student would be $1,168 (not $1,714). Analogously, if the higher expense, selective college were to attract students with less favorable expected family contribution characteristics, there would be a substantial impact on its offer of financial aid. Specifically, 78 percent of its students would then be judged needy (not 43 percent) and the average grant per student would then be $4,179 (not $2,542). The financial burden on the selective college would increase considerably and, of course, might well lead to modification of its current pricing and financial aid policies.

Table 4

How Would Financial Aid Awards Change If Selective and Standard Colleges Attracted Students With Different Distributions of Expected Family Contribution?

	Percentage of Students Judged Needy	Average Grant Per Student	Average Grant Per Needy Student
$15,150 Comprehensive Expense High Expected Family Contribution (Mean = $17,750, Standard Deviation = $14,850) 100% Need Met, $3,400 Self-Help	43	$2,542	$5,932
	(Similar to actual results for selective colleges)		
$15,150 Comprehensive Expense Low Expected Family Contribution (Mean = $9,100, Standard Deviation = $7,900) 100% Need Met, $3,400 Self-Help	78	4,179	5,362
	(Representing results if selective colleges attracted students with low expected family contribution)		
$11,200 Comprehensive Expense Low Expected Family Contribution (Mean = $9,100, Standard Deviation = $7,900) 90% Need Met, $3,400 Self-Help	61	1,713	2,825
	(Similar to actual results for standard colleges)		
$11,200 Comprehensive Expense High Expected Family Contribution (Mean = $17,750, Standard Deviation = $14,850) 90% Need Met, $3,400 Self-Help	33	1,168	3,541
	(Representing results if standard colleges attracted students with high expected family contribution)		

4. Conclusion: The Significance of Institutional Financial Aid Differences in Pricing Competition

To the extent that further research focuses on pricing competition among colleges, it is important to account for institutional differences in financial aid awards. It is well understood that the "sticker price" of comprehensive fees does not represent the actual average price paid by students or the actual average revenue per student collected by colleges. An accurate description of aggregate trends in college pricing requires that aggregate trends in financial aid awards (along with tuition and fees) be considered. Similarly, an accurate description of pricing competition and relative average revenue requires that differences in financial aid awards be fully considered. The present paper emphasizes that differences among colleges in aid awards are the result of a complex interaction of several factors, including admissions selectivity, comprehensive fees, financial aid policies, and resulting family financial characteristics of matriculating students.

While the present paper is intended to provide a first step in describing and analyzing differences among private colleges in financial aid, much work remains to be done. As part of such further work, a more detailed account of the need analysis methodologies and packaging approaches used by different colleges is essential. Further, it would be extremely helpful to have data available on the actual institutional distributions of students' family financial characteristics, including information on the proportions of dependent versus self-supporting students.

Finally, the present study has found it appropriate to emphasize the different patterns of financial aid which exist between "selective" and "standard" colleges. However, within each of these groups, there is also considerable variation, and future work on financial aid and pricing competition might well recognize and analyze these differences.

Appendix A

New England Four-Year, Private Institutions Included in the Sample

Standard Institutions

Albertus Magnus College
American International College
Anna Maria College for Men and Women
Atlantic Union College
Bennington College
Bradford College
Bryant College
Colby-Sawyer College
Curry College
Daniel Webster College
Emerson College
Emmanuel College
Franklin Pierce College
Gordon College
Green Mountain College
Husson College
Lesley College
Merrimack College
New England College
New Hampshire College
Nichols College
Pine Manor College
Post College
Quinnipiac College
Regis College
Roger Williams College
Saint Anselm College
Saint Joseph College (CT)
Saint Joseph's College (VT)
Saint Michael's College
Salve Regina--The Newport College
Simmons College
Southern Vermont College
Stonehill College
Thomas College
Trinity College (VT)
University of Bridgeport
University of Hartford
University of New England
University of New Haven
Westbrook College
Western New England College
Wheaton College
Wheelock College

Selective Institutions

Amherst College
Bates College
Boston College
Boston University
Bowdoin College
Brandeis University
Brown University
Clark University
Colby College
College of the Holy Cross
Connecticut College
Dartmouth College
Harvard University
Massachusetts Institute of Technology
Middlebury College
Mount Holyoke College
Smith College
Trinity College (CT)
Tufts University
Wellesley College
Wesleyan College
Williams College
Yale University

Non-Classified Institutions

Babson College
Bentley College
Hampshire College
Providence College
Simon's Rock of Bard College

ENDNOTES

[1] An important contribution is Tierney, "The Actual 'Tuition Gap': Differential Pricing by Public and Private Institutions," which focuses, from a student's perspective, on the difference between public and private institutions' tuition net of financial aid.

[2] In arriving at the adjusted comprehensive expense for each college, the college's estimated comprehensive expenses for freshmen living in dorms, freshmen living off campus with parents, and freshmen living off campus but not with parents were weighted by their respective fractions of the overall freshmen total.

For the most part, expense data was drawn from The College Cost Book 1985-86. Where such data was incomplete or inconsistent with Peterson's The College Money Handbook, data was drawn from the particular college's catalogue. Data on the residential status of freshmen was collected through a telephone survey by the author.

[3] Given the specified normal distribution (characterized by its mean and standard deviation), specified comprehensive expense, and specified percentage of need met, the simulation results for each case follow.

The percentage of students whose expected family contribution falls short of the college's assumed comprehensive expense is presumed to be the percentage of students judged "needy" by the college. The amount of need is presumed to be the difference between the expected family contribution and the amount of comprehensive expense, and the college is presumed to meet a specified percentage (90% or 100% in the simulated cases) of such calculated need. Further, $3,000 of self-help (loans and work-study) is assumed to be first used by the college in its aid package. The remaining portion of the package is assumed to be in the form of grants, a portion of which is externally provided and a portion of which is college-funded. Given the percentage of students judged needy, given the specified percentage of need met, and given the specified aid packaging, it is possible to calculate the total amount of grants and self-help which students are awarded. Dividing these total amounts by the total number of students yields the "average per student" figures. Dividing these total amounts by the number of students judged needy yields the "average per needy student" figures.

The assumption that the college first uses self-help as part of its packaging was adopted in order to facilitate the calculation. A more sophisticated simulation should probably incorporate a more realistic notion of external grants being the first portion of the aid package. As long as such external grants (primarily Pell Grants and state scholarship awards) are only awarded to those freshmen with the most extreme need, who would have more than $3,000 of remaining need after the award of external grants, then the simulation results should not be significantly affected by the presumption that self-help is the first part of the aid package.

[4] This comparison involves Cases 1 vs. 2 vs. 3, 4 vs. 5 vs. 6, 7 vs. 8 vs. 9, and 10 vs. 11 vs. 12.

[5] This comparison involves Cases 1 vs. 7, 2 vs. 8, 3 vs. 9, 4 vs. 10, 5 vs. 11, and 6 vs. 12.

[6] It may be helpful to explain why average aid per needy student can be higher with a higher distribution of expected family contribution. Other things being equal, higher expected family contribution reduces the percentage of students judged needy. However, among those students judged needy, it may be the case that the average amount of need is higher. Thus, it is possible for average aid per needy student to be higher despite the more favorable distribution of expected family contribution among students as a whole.

[7] This comparison involves Cases 1 vs. 4, 2 vs. 5, 3 vs. 6, 7 vs. 10, 8 vs. 11, and 9 vs. 12.

[8] In splitting the sample between "selective" and "standard" schools, those colleges ranked by Barron's as "very competitive" were excluded. The "very competitive" rank is below the "most competitive" and "highly competitive" ranks and above the "competitive" and "less competitive" ranks. Five colleges fall in

this "very competitive" group: Babson College, Bentley College, Hampshire College, Simon's Rock of Bard College, and Providence College.

[9] Of course, one of the major themes which is emerging in this paper is that other factors are not likely to be equal. Specifically, the "selective" colleges tend to assess higher comprehensive fees and to attract a group of students with higher income and wealth characteristics, which would yield a more favorable distribution of expected family contribution at the "selective" colleges than at the "standard" colleges even if all colleges used Uniform Methodology.

[10] This approach implicitly assumes that all freshmen are dependent students. However, some freshmen are self-supporting, and the estimated budget for self-supporting students is typically higher than for dependent students. Thus, the conclusions reached about median expected family contribution at selective and standard colleges may be viewed as expressing a type of "dependent student equivalency." I.e., the distribution of freshmen matriculating at standard colleges is "as if" all freshmen were dependent students and the median expected family contribution was less than $10,896; and for selective colleges, the distribution is "as if" all freshmen were dependent students and the median expected family contribution was above $15,097.

[11] The assumed levels of comprehensive expenses ($15,150 and $11,200) and the normal distributions of expected family contribution (mean = $17,750, standard deviation = $14,850 and mean = $9,100, standard deviation = $7900) were not randomly chosen. The higher expense and higher distribution of expected family contribution, in conjunction with the presumed levels of self-help and percentage of need met, lead to simulated results (comprehensive expense, percentage of students judged needy, average grant per student, and average grant per needy student) similar to the actual results in Table 3 for "selective colleges." The lower expense and lower distribution of expected family contribution lead to simulated results similar to the actual results for "standard colleges."

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Financing College: Implications of Alternative Choices for Urban University Students

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Executive Summary

In a survey of urban university students, sex, parent education, race/ ethnicity, hours worked, part- vs. full-time college attendance, use of financial aid services, and residence with parents were related to grades, to social integration, and to persistence five years later. Students living with their parents used financial aid much less. A path analysis showed that for men, residence with parents was associated with working longer hours; financial aid usage was positively related to persistence. For women, residence with parents was unrelated to hours worked and was positively related to persistence.

Financing College: Implications of Alternative Choices for Urban University Students

Much research on the persistence of students in postsecondary institutions has been based on a theory formulated by Tinto (1975). Tinto reviewed previous research and proposed that student retention depends on (1) academic integration, the extent to which the student is part of the academic life of the college, as indicated by grades and perceived intellectual development, and (2) social integration, the extent to which the student is a part of the social life of the college community, interacting with and developing close relationships with both students and faculty.

Research at residential universities has supported the relationship of both academic and social integration to retention (Bean, 1983; Bean & Hull, 1984; Pascarella & Terenzini, 1979, 1980). However, at commuter universities, academic integration is positively related to persistence, but social integration is unrelated or negatively related to persistence (Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983).

However, as Tinto (1982) and Bean and Metzner (1985) have pointed out, Tinto's model focuses on the student's interaction with the institution. It does not include external factors which might impact on persistence, such as financial pressures. Financial factors might have a direct effect on persistence; since low income parents are less able to afford college, their children may simply be more likely to drop out because of inability to pay for expenses. Indirect effects might also be involved. The low income student may be more likely to work long hours and to attend the university part time. Therefore, grades, intellectual development, and social integration might suffer. (Research shows that working less than 20 hours a week is positively related to persistence [Bean & Metzner, 1985]. However, working more than 20 hours a week is negatively related to persistence. Peng and Fetters [1978] found that work overall was negatively related to persistence.)

Financial aid is, of course, another source of funds for college. Very little research has been done on financial aid, especially considering the large amount of money that goes into it. Also, studies done at different times may not be comparable because of changes in the type of aid that is available. To assess the effects of financial aid on persistence, it is important to control other variables that might affect persistence, particularly academic background. Yet even studies which did so have yielded inconsistent results. Different results have been found for women and men, for grants and loans, and according to whether the aid is a major or minor source of support (Astin, 1977). Different studies have found financial aid to be positively related to persistence (Jensen, 1981; Voorhees, 1985), negatively related (Cross & Astin, 1981), and unrelated (McCreight & LeMay, 1982; Peng & Fetters, 1978). Because of these inconsistent findings, few general conclusions can be reached. However, there does seem to be some evidence that large loans may have a negative effect on persistence (Astin, 1977; Cross & Astin, 1981). Students who are heavily in debt may drop out of college in order to work and reduce their indebtedness. Jensen (1981) found that the receipt of aid had a slight positive effect on persistence but that amount of aid had no effect. It is possible that in Jensen's study, the positive effects of some types of aid are being overshadowed by the negative effects of large loans.

The present analysis used data from a larger study to determine the effects of various ways of financing college. The methods of financing college included work, part-time attendance, financial aid, and residence with parents, often used as a way of saving on room and board. The following major hypotheses were tested:

1. Minority students and those with less educated parents would be more likely to work, to use financial aid, to attend the university part time, and/or to live with their parents.
2. Hours worked and use of financial aid would be positively correlated. (Most financial aid packages do not meet all of the student's need. Therefore, students from low income families would be more likely both to work and to receive financial aid.)
3. Hours worked would be negatively related to both academic and social integration, as work would take time from both study and social life.
4. Academic integration would have a positive effect on persistence, but social integration would be unrelated to persistence.
5. Use of financial aid would be positively related to persistence.

Method

Subjects

In spring, 1980, a random sample of University of Wisconsin-Milwaukee (UWM) classes was selected. Classes in the Department of Educational Opportunity and Afro-American Studies were slightly oversampled in order to obtain more minority students. Follow-up data on persistence was obtained for 78 percent of the full-time and part-time freshmen and sophomores in the original survey,[1] a total of 529 students. The present study was based on the 334 students who had complete data on the variables used in the study. Because few students were parents and their financial situation is very different from that of the typical student, only childless students were included in the analysis.

Variables

Student Questionnaire. A questionnaire was administered to the chosen classes during regular class periods. The questionnaire contained questions about student goals and aspirations, use of student services, participation in university social life, overall satisfaction with UWM, and demographic variables.

The questionnaire information provided the following dummy variables: race/ethnicity (0 = minority (black, Hispanic, or Native American), 1 = white), student status (0 = part-time, 1 = full-time), and residence (0 = not with parents, 1 = with parents). Other variables included age, hours worked per week (1 = none, 4 = 36 or more), use of financial aid services (1 = never, 3 = once a semester or more), and parent education, used as an index of social class.

The following items were used as indicators of social integration: use of recreational sports programs (1 = never, 5 = more than once a month), attendance at social or cultural activities at UWM (1 = never, 5 = once a week or more), "most of the people you socialize with 2 students at UWM" (1 = no, 3[2] = yes), frequency of studying with other students (1 = never, 4 = once a week or more), and number of organizations the student was active in. A Social Integration Scale was created by summing scores on the above items. The Social Integration Scale had a reliability of .56 (Cronbach's alpha) for the whole sample.

1979-80 Grade Point Average was obtained from UWM files and was used as an indicator of academic integration.

Persistence. A search of UWM files provided data on persistence until the fall, 1985 semester. Persisters were defined as students who were enrolled during the fall, 1985 semester, or who had graduated by the end of that semester. All other students were considered dropouts. The sample included 279 persisters and 250 dropouts.

Analysis

The model shown in Figure 1 was tested by means of path analysis. The ordering of the variables was based on time sequence and on the hypothesized logical ordering of variables in a causal sequence. Analyses were performed for the total sample and for men and women separately, as previous studies have obtained results differing by sex (Bean, 1980; Pascarella & Terenzini, 1979, 1983). The background characteristics were treated as exogenous variables (determined from outside the causal model), while other variables were treated as endogenous (determined by other variables within the causal model). Each endogenous variable was regressed on the background variables and all causally antecedent endogenous variables. The variables were entered in sets: first background, then college situation, then academic and social integration variables. The regressions were run twice. The first run included all variables. Variables for which the path coefficients (standardized beta weights) did not approach significance ($p < .10$) were deleted, and the regressions were rerun. The second set of regressions provided the path coefficients, the beta weights significant at the .05 level.

Results

Demographically, the sample had many characteristics of traditional college students. Ninety-two per cent were white, 98 percent were under the age of 25, and 95 percent were full-time students. Virtually all (99 percent) were single, and 64 percent were living with their parents. However, the students were nontraditional in educational background and economic characteristics.

Only 14 percent had parents with an average of a college degree. Almost three-fourths (72 percent) were working, and 28 percent were working 20 hours a week or more. Almost half (45 percent) had used financial aid. There were no significant sex differences on any of the above characteristics.

Fifty-nine per cent of the sample were persisters. Virtually all of the persisters had graduated, but a few were still enrolled. The sample was probably somewhat biased in favor of persistors. Since the questionnaires were distributed in class, students who were conscientious about class attendance were probably overrepresented, and class attendance is related to persistence.

The correlation matrices are shown in Tables 1 and 2, the path diagrams in Figures 2, 3, and 4. Correlations among variables at the same level are not shown on the path diagrams (e.g., correlations among background variables or among situational variables).

For males, the multiple R (with persistence as the dependent variable was .26 and R^2 was .067. For females the multiple R was .40 and R^2 was .162.

The tests of the hypotheses yielded the following results. If sex is not specified, the results are for the total sample.

1. Effects of Race and Parent Education on Work, Financial Aid Use, and Residence with Parents

As predicted, parent education, the measure of social class, was related to work and to part-time attendance. Students with less educated parents worked longer hours (beta = -.14) and were more likely to attend the university part time (beta = .16).

This finding provides some evidence that parent education was a valid index of social class. However, parent education was not related to use of financial aid services.

On the other hand, race/ethnicity was related to financial aid use. White students used financial aid less than minority students (beta = -.23). However, white students worked longer hours (beta = .13), a small but significant relationship.

Race and parent education were unrelated to residence with parents. Age was the only variable with a significant effect on residence, with older students less likely to live with their parents (beta = -.26).

2. Relationships Among Financial Aid Use, Work, and Residence with Parents

Financial aid usage was virtually uncorrelated with hours worked. Students living with their parents used financial aid much less (biserial r = -.38). Men living with their parents worked somewhat longer hours (biserial r = .19).

3. Effects of Work on Academic and Social Integration

It was predicted that work would have a negative effect on both academic integration (GPA) and social integration, and this prediction was supported. Students who worked longer hours got poorer grades (beta = -.17) and were less involved in the university social life (beta = -.19).

4. Effects of Academic and Social Integration on Persistence

Academic integration (GPA) had the strongest effect on persistence (beta = .29). As in previous studies in commuter universities (Pascarella et al., 1983), social integration was unrelated to persistence.

5. Effects of Financial Aid on Persistence

For the total sample and for women, use of financial aid services was unrelated to persistence. But for men, financial aid use had a direct positive effect on persistence (beta = .17).

Other Results

Consistent with previous research, high school percentile had a strong positive influence on GPA (beta = .43). High school percentile and college GPA were unrelated to financial aid use.

Residence with parents had a number of correlates. Students living with their parents were low in social integration (beta = -.33). Yet for the total sample and for women, students living with their parents were slightly more likely to persist.[3]

Discussion

The predictions of persisence were relatively poor. However, persistence was assessed five years after the original survey and a high level of success in predicting persistence would not be expected over such a long time span.

It was hypothesized that, since parent education is correlated with parent income, students with less educated parents would be more likely both to work and to receive financial aid. Parent education was related to work and to part-time attendance. These correlations indicate that parent education was a valid measure of social class.

However, parent education was not related to financial aid usage. Financial aid may not be reaching many students who really need it. Some students may think of financial aid as "welfare" and feel that there is a stigma attached to it. Many students who could qualify for financial aid do not use it. For some students with less educated parents, the parents' lack of information about aid, unwillingness to go into debt and difficulties with filling out forms may be barriers (Olson & Rosenfeld, 1984).

However, the measure of financial aid use was very rough. It was a three-point scale indicating the number of semesters that the student had used financial aid. A more refined measure involving amount of aid and use of grants vs. loans might have yielded a relationship between parent education and financial aid use.

Minorities and financial aid services more often, when parent education was held constant. However, this finding may not indicate a race/ethnicity effect per se; the race/ethnicity variable may also reflect social class. The path analysis technique controls for parent education in evaluating the effects of race/ethnicity. Yet even if minority parents had the same education as white parents, they might have had lower incomes and therefore their daughters and sons would be more likely to qualify for aid. Also, high minority use of financial aid may reflect the university's efforts to recruit minority students and to make them aware of financial aid opportunities. Many minority students were in a special program for underprepared students through which they might have been assisted in applying for financial aid.

Financial aid use was unrelated to high school and college grades. This result is due to the fact that aid is predominantly based on need rather than merit.

Students who lived with their parents used financial aid less, probably because their total need was less. In assessing the student's total need, the Financial Aid Office assumes that students living with their parents need less money for room and board than do students living in a dorm or apartment.

But men who lived with their parents tended to work longer hours than those who lived away from home. Students from low income families may feel an obligation to contribute to their parents' household expenses. There may be more pressure on men, the traditional breadwinners, to do so.

Students who lived with their parents were lower in social integration, but women were more likely to persist in college. Chickering (1974) and Astin (1984) have pointed out that the commuter student is not getting as good a university experience as the dorm student. Yet for students from noncollege backgrounds, the social advantages of dorm residence may be outweighed by the financial advantages of living with parents (Hall, Mickelson, & Pollard, 1985).

However, the supportiveness of the parents and the peer environment must be considered as well. Some urban universities try to encourage dorm residence, but this policy should be implemented with caution.

Work had negative effects on both GPA and social integration. As predicted, financial aid had no direct effect on either GPA or social integration. Therefore, financial aid use resulted in a better college experience than working long hours. The impact of financial aid may partly depend on whether it makes it possible for the student to work fewer hours, or not work at all.

Implications for Students

The results have different implications for men and women as to the best sources of financial support. Women benefitted most from living with their parents. Residence with parents was directly and significantly related to persistence.

For men, on the other hand, financial aid use had a direct positive effect on persistence. Living with parents was not beneficial for men. It had no direct relationship to persistence. Also, men who lived at home used financial aid less and worked more, with resulting negative effects on grades and persistence.

Working and/or part-time attendance were undesirable for both men and women. Part-time students and those who worked long hours got slightly lower grades and students with lower grades were less likely to persist. However, work and part-time attendance were not as strongly related to persistence as some other variables.

Implications for Future Research

The present study has a number of limitations. Parents' education is not a good index of parents' ability to finance college. The measure of financial aid usage was not sufficiently refined. The work variable did not differentiate between off-campus and on-campus jobs. (Previous research has shown that on-campus jobs facilitate persistence, while off-campus jobs do not.) The small number of students, and particularly of minority students, means that the results should be considered tentative.

Future research should replicate this study. The implications of the lack of relationship between grades and financial aid might be explored. What are the effects of financial aid on persistence, for students with different levels of high school achievement?

Also, large-scale studies like this one need to be supplemented by qualitative studies of students' perceptions of the alternative ways of financing college and the ways in which students make decisions about how to finance college. Why do men living with their parents work longer hours than men in other living situations? Do the financial aid policies not allow enough for room and board for the student living at home, or are there more pressures on the man living at home to contribute to the household?

How do students decide whether to work and/or obtain financial aid? What is the relationship between social class background and financial aid use? Students receiving financial aid may work for a number of reasons: because the amount of aid doesn't meet their needs, because of family need for income, etc. Under what circumstances does financial aid reduce hours worked? This is an important question, since hours worked had negative effects on both grades and social integration, but financial aid did not affect either.

Research on financial aid use has barely scratched the surface. The situation is complex, since persistence in college is affected by many factors other than financial aid. Much more work needs to be done in this area, so that the available financial aid money can be used wisely.

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Footnotes

[1] Many students could not be followed up because they did not put their social security numbers on the original questionnaire. In other cases, the social security numbers could not be matched, probably because they were incorrect.

[2] Given a value of three to make the variance of that item comparable to that of the other social integration items.

[3] It could be argued that the relationship between residence with parents and persistence was spurious. Students not living with their parents might be more likely to transfer to other universities and therefore to be classified as dropouts. However, there was evidence against this hypothesis. In the original 1980 questionnaire, the students were asked whether they expected to complete all their work at UWM or to transfer. There was no relationship between residence (dorm, apartment vs. with parents) and intent to transfer, for the total sample or for men and women separately.

Figure 1. Model for the Path Analysis

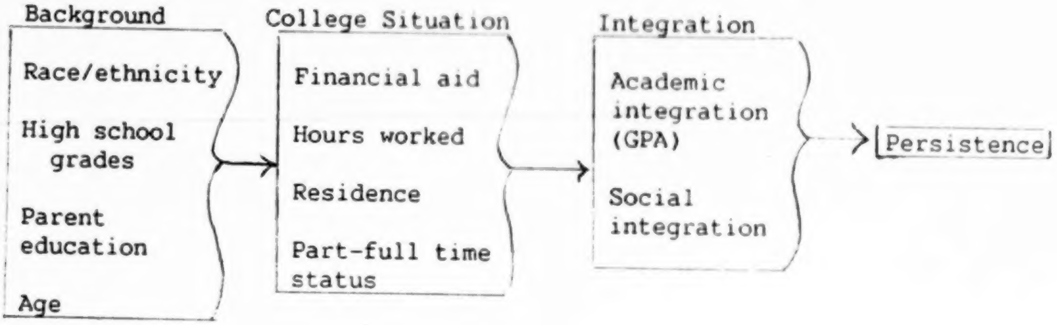
Background
Race/ethnicity
High school grades
Parent education
Age
College Situation
Financial aid
Hours worked
Residence
Part-full time status
Integration
Academic integration (GPA)
Social integration
Persistence

Table 1. Pearson Correlations for the Total Sample ($N = 334$)

	Par. educ.	Race/ ethn.	Age	Full-time	Work	Fin. aid	Res.-par.	GPA	Soc. int.	Pers.
Background										
HS percentile	-.06	.23**	-.23**	.13*	-.11*	-.14*	.13*	.46**	.09	.20**
Parent education		.14*	-.12*	.15**	-.11*	-.08	.01	.13*	.12*	.01
Race/ethnicity			-.05	.09	.07	-.24**	.08	.28**	.10	.14*
Age				-.08	.09	.15**	-.26**	.02	-.05	.00
College Situation										
Part-full time					-.27**	.06	.09	.23**	.19**	.11*
Hours worked						-.11*	.15**	-.23**	-.29**	-.04
Financial aid use							-.38**	-.08	.20**	.02
Residence with parents								.01	-.34**	.10
Integration										
Academic (GPA)									.20**	.29**
Social										.09
Persistence										

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* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

Table 2. Pearson Correlations by Sex
(Women to the Left of the Diagonal, Men to the Right)

Background	HS %	Par. educ.	Race/ ethn.	Age	Full- time	Work	Fin. aid	Res.- par.	GPA	Soc. int.	Pers.
HS percentile	—	-.18*	.25**	-.40**	.21**	-.13	-.08	.15	.41**	.04	.19*
Parent education	.05	—	.11	.01	.10	-.12	-.07	-.05	.07	.10	.06
Race/ethnicity	.24**	.16*	—	.00	.03	.07	-.24**	.10	.21**	.10	.05
Age	-.15*	-.20**	-.08	—	-.11	.11	.16*	-.22**	-.05	-.01	.05
College Situation											
Part-full time	.08	.19	.14	-.07	—	-.31**	.07	-.06	.18*	.18*	.18*
Hours worked	-.08	-.11	.07	.08	-.24**	—	-.08	.19*	-.24**	-.34**	-.16*
Financial aid use	-.21**	-.08	-.23**	.14	.06	-.14	—	-.36**	-.08	.19*	.16*
Residence w/parents	.12	.06	.05	-.28**	.21**	.11	-.39**	—	-.03	-.35**	.02
Integration											
Academic (GPA)	.48**	.18*	.33**	.05	.27**	-.22**	-.10	.04	—	.16	.19*
Social	.10	.13	.10	-.08	.19*	-.24**	.20*	-.34**	.23**	—	.06
Persistence	.22**	-.03	.21**	-.02	.05	.07	-.10	.17*	.36**	.11	—

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* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

Figure 1. Model for the Path Analysis

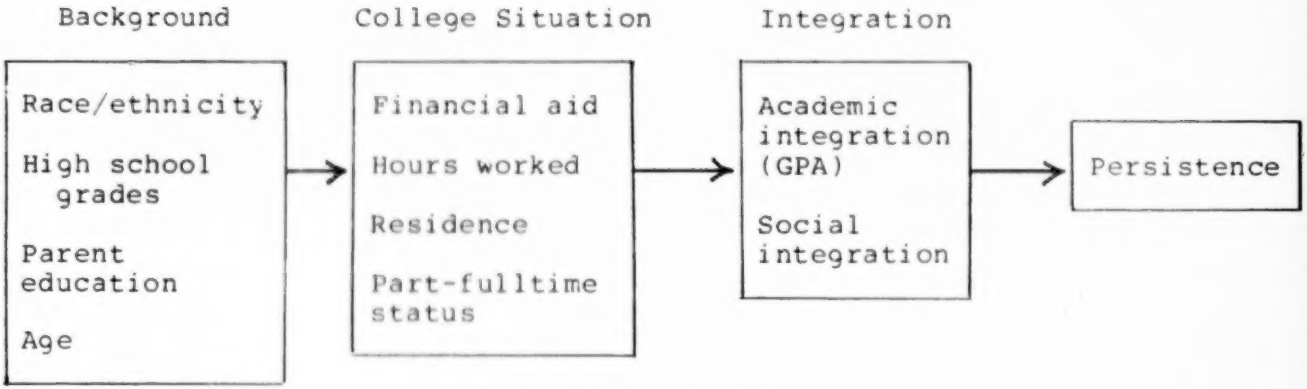

Background
College Situation
Integration
Race/ethnicity
High school grades
Parent education
Age
Financial aid
Hours worked
Residence
Part-fulltime status
Academic integration (GPA)
Social integration
Persistence

Figure 2. Path Diagram for the Total Sample

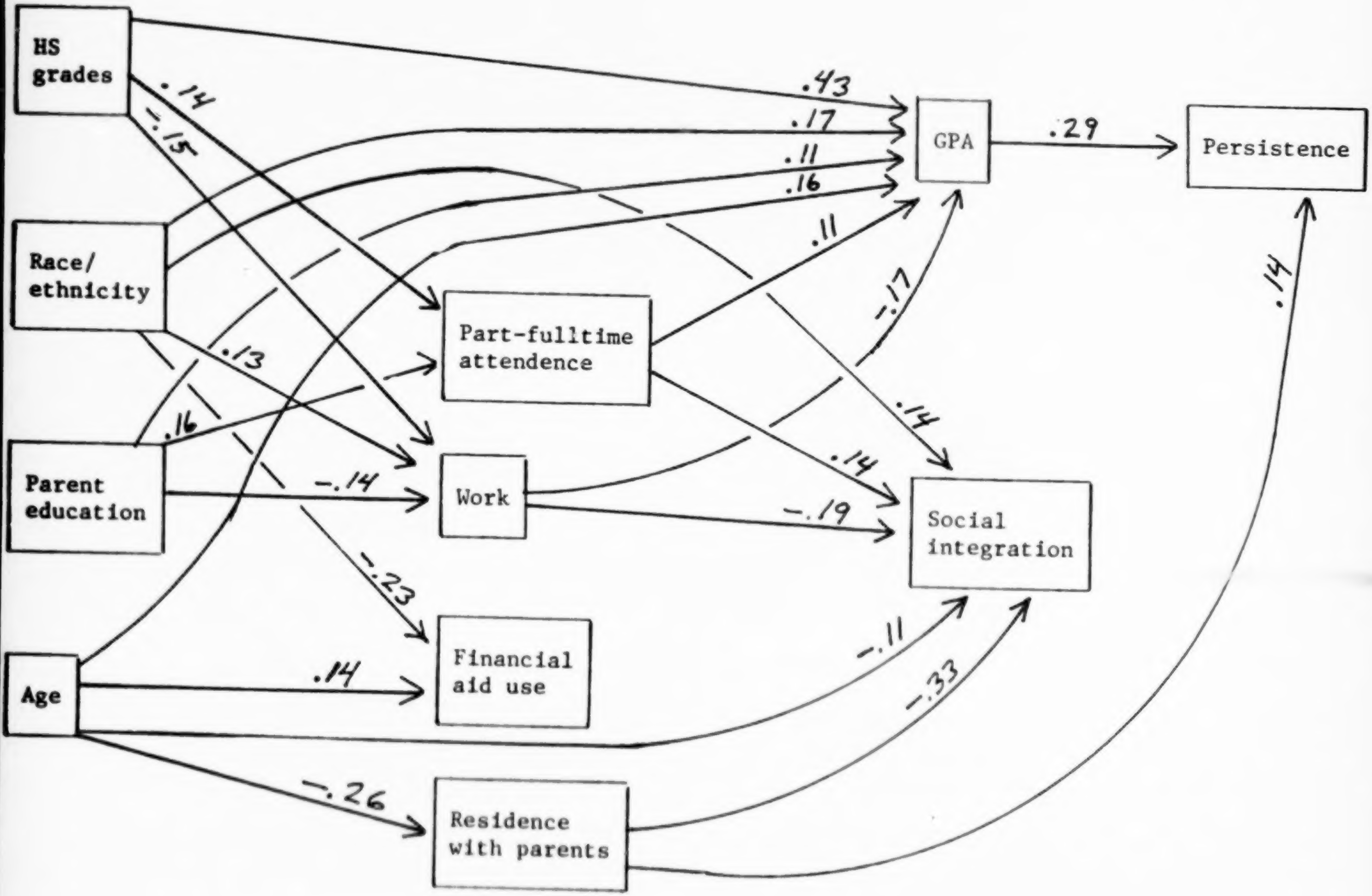
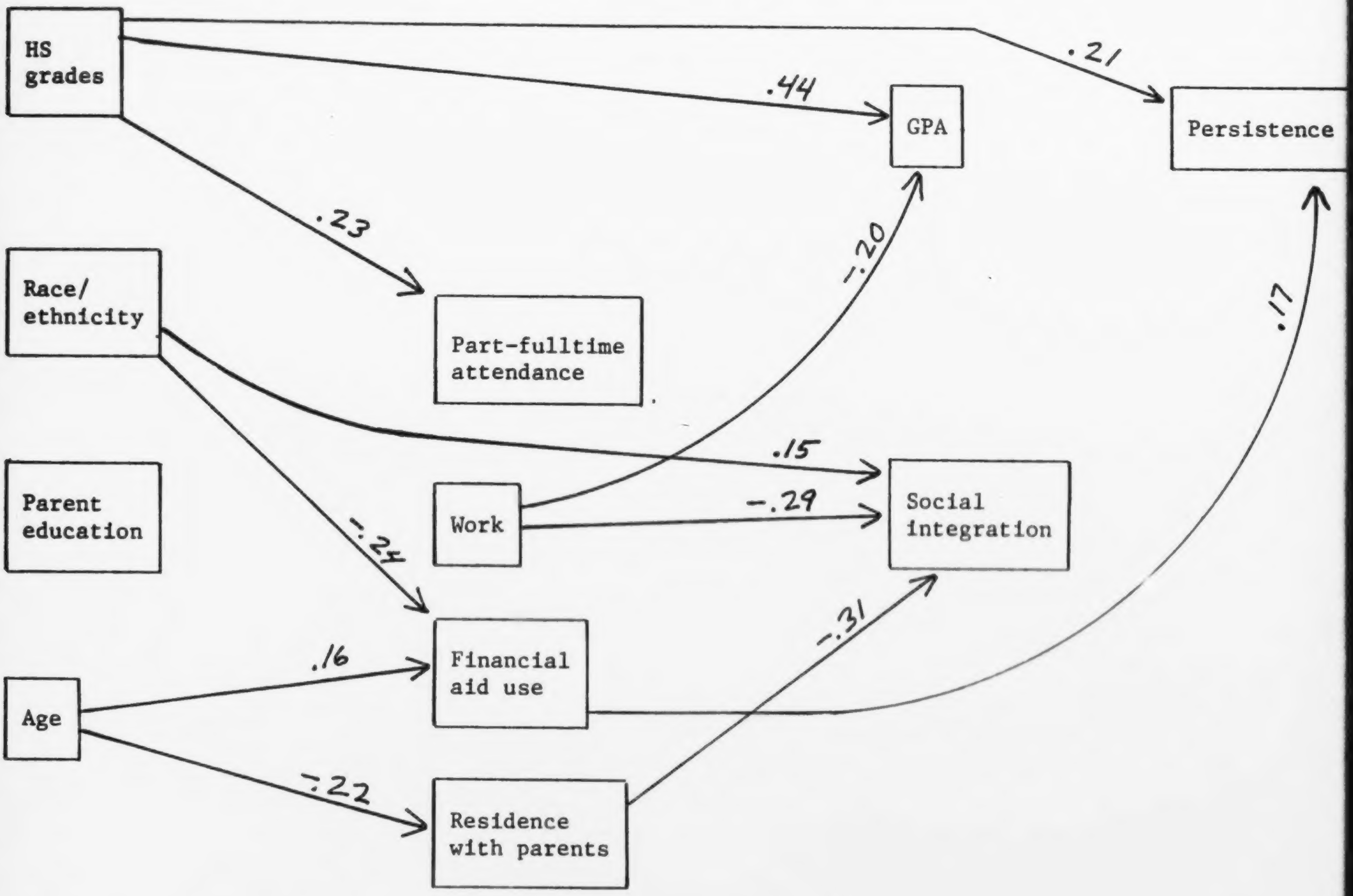
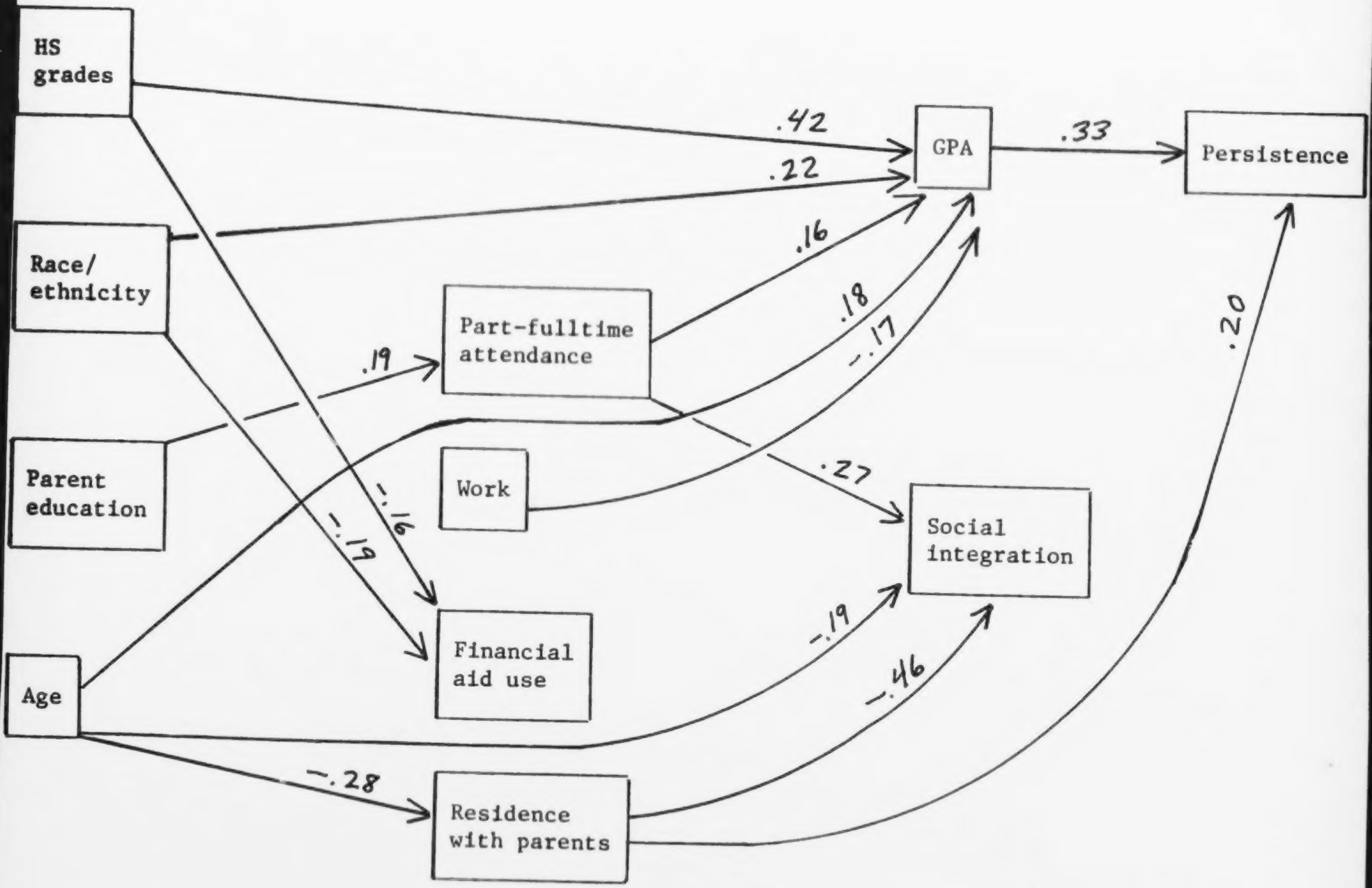

HS grades
Race/ ethnicity
Parent education
Age
Part-fulltime attendence
Work
Financial aid use
Residence with parents
GPA
Persistence
Social integration
.43
.17
.11
.16
.11
.29
.14
-.15
.13
.16
-.14
-.23
.14
-.17
.14
.14
-.19
-.11
-.33
-.26
.14

Figure 3. Path Diagram for Men



HS grades
.21
.44
GPA
Persistence
.23
-.20
Race/ ethnicity
Part-fulltime attendance
.17
.15
Parent education
Work
-.29
Social integration
-.24
-.31
.16
Financial aid use
Age
-.22
Residence with parents

Figure 4. Path Diagram for Women


HS grades
Race/ ethnicity
Parent education
Age
Part-fulltime attendance
Work
Financial aid use
Residence with parents
GPA
Persistence
Social integration
.42
.22
.16
.18
-.17
.33
.19
.20
.27
-.16
-.19
-.19
-.46
-.28